UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 17 2017

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Gary Frazer
Assistant Director
U.S. Fish and Wildlife Service
Ecological Services
5275 Leesburg Pike
Falls Church, VA 22041-3803

Dear Mr. Frazer,

Thank you for your letter requesting additional information to complete formal consultation on the Biological Evaluations (BEs) for chlorpyrifos, malathion, and diazinon, which were finalized on January 18, 2017.

As you are aware, the BEs were developed with Services oversight and included all information and analyses as requested by the National Marine Fisheries Service (NMFS) and Fish and Wildlife Service (FWS) during their development. We understand, however, that in the course of our consultation, FWS has indicated that additional information regarding use and usage information could be of value in the development of the FWS biological opinions (BiOps). We will treat your letter as a request for additional information as described in section 402.14(f) of the FWS regulations and not a request to revise the EPA BEs with additional information under section 402.46(b). This is consistent with the regulations that require requests from FWS for additional information to be submitted within 45 days of EPA providing the BE to FWS (50 CFR Part 402). Accordingly, any agreement from EPA to supplement the consultation should not be viewed as EPA's agreement to either revise or withdraw its final BEs.

We are pleased that the utility of the use and usage information is being reconsidered, and we anticipate being able to provide this information within approximately 6 months.
Use information (*e.g.*, maximum application rate, number of allowed applications, etc.) is extracted directly from product labels whereas usage information describes where, when, and how a pesticide is actually being used based on survey information. In order to provide the requested use and usage information, staff from EPA's Biological and Economic Analysis Division (BEAD) must compile and summarize label information, appropriately aggregate complex use directions, and develop associated usage statistics. The number of registered use sites for these active ingredients is extensive with more than 100 active registered products for

chlorpyrifos and diazinon. Additionally, this work would need to be completed concurrently with BEAD's existing workload to provide use and usage information supporting EPA's registration review program.

Your letter also requests to extend the consultation in accordance with 50 C.F.R.402.14(e). We agree that consultation should continue and be extended as necessary, and that any required consent from any applicants be obtained.

Sincerely,

Brian Anderson

For Marietta Echeverria
Director, Environmental Fate and Effects Division
Office of Pesticide Programs

United States Department of the Interior

FISH AND WILDLIFE SERVICE

NOV 14 2017

Marietta Echeverria
Director, Environmental Fate and Effects Division
Office of Pesticide Programs
Division Mail Code 7507P
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, D.C. 20460

Dear Ms. Echeverria,

On January 18, 2017, the U.S. Fish and Wildlife Service (Service) received the Environmental Protection Agency's (EPA) draft Biological Evaluations (BEs) on the effects of reregistering chlorpyrifos, malathion, and diazinon under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and request to initiate formal consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA). As you are aware, this effort was one of the most complex section 7 consultations ever attempted. While we appreciate the collaboration with the Service and others that informed the development of these BEs, after further review and lessons learned in consideration of the BEs the Service is requesting additional information necessary to complete formal consultation. (See interagency consultation regulations at 50 CFR §402.14). Specifically, we request:

- A revised effects analysis for each chemical that reflects the best scientific and commercial data that is currently available or which can be obtained during the consultation – the standard for information required under 50 CFR §402.14(d) for an action agency when seeking formal consultation – regarding actual use, including extrapolation to areas where actual use data does not exist or cannot be obtained. The revised effect analyses should also seek to predict effects from future usage that is reasonably certain to occur during the time period of the label authorization but is not reflected in current actual use data.

- A revised effects analysis for each chemical that eliminates from analysis geographic areas identified by EPA where these pesticides are not used and where such use is not likely during the time period of the label authorization, or where listed species or designated critical habitats would not otherwise be exposed to use of the pesticide (e.g., certain states, high elevation areas, uninhabited islands).

In addition, the Service also suggests that the EPA monitor available use and usage information to determine if the manner of actual use remains consistent with assumptions of use and usage considered in the consultation process.

Under the regulations, indirect effects are "those that are caused by the proposed action and are later in time, but are reasonably certain to occur." 50 C.F.R. 402.02. The effects analysis determines the action area, which is "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." 50 C.F.R. 402.02. We must keep in mind the ESA regulations when considering the action description and effects analysis.

In the course of developing the draft and final biological opinions and associated incidental take statements, the Service requests that EPA facilitate coordination with the registrants and user groups to develop, if necessary, any reasonable and prudent alternatives to avoid violation of section 7(a)(2) of the Act and any reasonable and prudent measures necessary or appropriate to minimize the impact of your action on listed species.

This letter also serves as a request to extend the consultation, in accordance with 50 C.F.R. 402.14(e). Upon receipt of the above requested information, the Service will work with EPA to establish a schedule to complete consultation on the proposed actions.

If you have any questions or concerns about this request or the consultation process in general, please feel free to call me at 202-208-4646 or Deputy Assistant Director Gina Shultz at 703-358-1985.

Sincerely,

Gary Frazer
Assistant Director - Ecological Services

Message

From: Echeverria, Marietta [Echeverria.Marietta@epa.gov]
Sent: 4/23/2018 8:46:24 PM
To: Garber, Kristina [Garber.Kristina@epa.gov]; Anderson, Brian [Anderson.Brian@epa.gov]; Panger, Melissa [Panger.Melissa@epa.gov]
Subject: FW: electronic version of Pesticide Use and Usage Data Presentation
Attachments: PowerPoint on Possible Actual Use data sources, methods.PPTX

FYI – this is what the registrants presented last week.

From: Richardson, R. Steven [mailto:rsrichardson@wileyrein.com]
Sent: Monday, April 23, 2018 4:27 PM
To: Echeverria, Marietta <Echeverria.Marietta@epa.gov>
Subject: RE: electronic version of Pesticide Use and Usage Data Presentation

Hi, Marietta

Per your request, here is an electronic version of the PowerPoint distributed at last week's meeting with USFWS and EPA staff. Please let me know when you plan to "docket" the material, notes and participant list.

Thanks,

Steven

Steven Richardson
Wiley Rein LLP
1776 K Street NW | Washington, DC 20006
T: 202.719.7489 | M: 202.460.4721 | rsrichardson@wileyrein.com
www.wileyrein.com | Bio | LinkedIn | Twitter

From: Echeverria, Marietta [mailto:Echeverria.Marietta@epa.gov]
Sent: Monday, April 23, 2018 4:02 PM
To: Richardson, R. Steven <rsrichardson@wileyrein.com>
Cc: Shultz, Gina <gina_shultz@fws.gov>; Perry, Tracy <Perry.Tracy@epa.gov>
Subject: electronic version of Pesticide Use and Usage Data Presentation

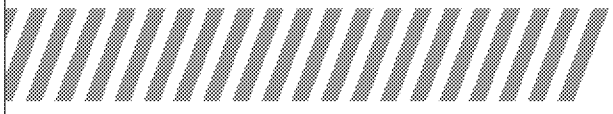
Hi Steve,

Thank you for the meeting last week on the ongoing OP consultations between EPA and FWS. As Gina mentioned at the beginning of the meeting, EPA plans on docketing the meeting minutes, materials and participant list. Could you please send an electronic version of the power point presentation?

Regards,
Marietta

this message. Please permanently delete all copies and any attachments and notify the sender immediately by sending an e-mail to Information@wileyrein.com.

Pesticide Use and Usage Data



Al Barefoot, FMC
Pat Havens, DowDuPont
Laura Phelps, ADAMA
19-April-2018

Employing Usage data in Estimating Exposure Concentrations and Risks

- The type of usage data can include:
  - Total and base acres treated
  - Total pounds applied
  - Range of application rates
  - Methods of application
  - Crop treated
  - Number of farms treated
  - Other factors at varying spatial scales
- Usage data may be available by active ingredient, end-use product, and pesticide type

Data Relevant to Refine Exposure

Labeled uses
- Current use through reregistration
- Future labels will reflect significant changes

Incorporating Usage Data (pounds, timing and footprint)
- Ag and Non-Ag uses: defining the areas of action
  - Insecticide use volumes vary with pest outbreaks
- Factors that define or refine footprint of actual use
  - Percentage of treated area by state and crop
- National scale market surveys –USDA chemical use, AgroTrak
  - Ranges of use rates/numbers at varying spatial scales (state to region to CRD to county)
  - Trends over years
  - Differences by application methods – ground vs. aerial
- State use data – CA PUR, Washington, Oregon, etc.
  - Permitted use
  - Can be at highly detailed spatial/temporal scale
- Crop specific data - Cranberry institute
- Actual use specific – AMCA, FLMCC , REJV, company sales data

Next steps examining use data for the consultation process

Develop standard approaches/policy for including use data in consultations

Determine what data is useful at various stages/tiers
- PTA, where treated, how much is used
- Timing of applications over the cropped area
- Timing over multiple years

Identify gaps in data bases and alternative sources

Develop methods for compiling data, characterize uncertainties

Develop guidelines for use data
- Goal at each stage/tier of the assessment
- Availability within the time frame of the consultation
- Spatial scale needed to meet the need of a specific species
- End use product data
- Establish upper limits to the total amount that may be applied
  - all malathion and diazinon is imported, records are available

Program management of Federal and state lands
- Mormon cricket control

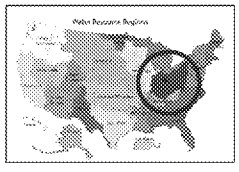
Percent Treated Area– Ohio basin (HUC02-05)

Upper 90th percentile percent treated area estimated for each state and crop group using the AgroTrak data from 2010-2015

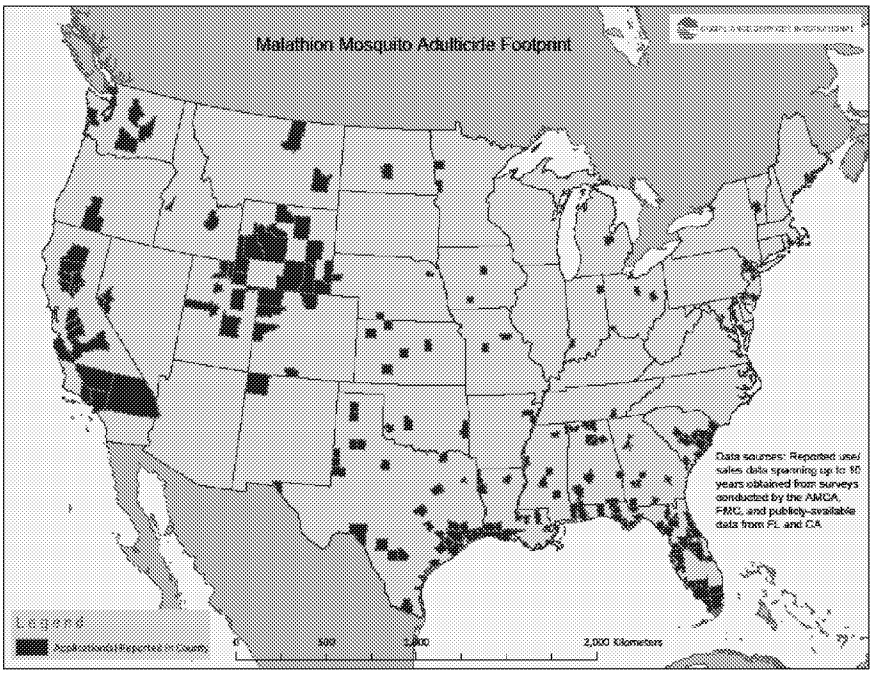
STATENAME	Corn	Cotton*	Orchards and grapes*	Other crops*	Other grains*	Other row crops	Pasture/ hay/forage	Soybeans	Vegetables and ground fruit
Illinois	1.3%	3.3%	21.5%	21.5%	1.6%	13.2%	10.1%	3.6%	1.1%
Indiana	1.5%	3.3%	21.5%	21.5%	1.6%	13.2%	19.0%	7.1%	1.1%
Kentucky	0.6%	3.3%	21.5%	21.5%	1.6%	2.8%	7.0%	7.2%	1.1%
Maryland	3.7%	3.3%	21.5%	21.5%	1.6%	13.2%	8.5%	7.2%	1.1%
New York	2.9%	3.3%	21.5%	21.5%	1.6%	13.2%	8.5%	7.2%	1.1%
North Carolina	1.2%	3.3%	21.5%	21.5%	1.6%	17.2%	8.5%	7.2%	1.1%
Ohio	0.8%	3.3%	21.5%	21.5%	1.6%	9.5%	3.4%	1.8%	1.1%
Pennsylvania	3.1%	3.3%	21.5%	21.5%	1.6%	64.2%	4.5%	6.6%	47.7%
Tennessee	1.9%	3.3%	21.5%	21.5%	1.6%	4.3%	8.5%	0.3%	1.1%
Virginia	2.3%	3.3%	21.5%	21.5%	1.6%	12.8%	7.3%	34.5%	1.1%
West Virginia	1.2%	3.3%	21.5%	21.5%	1.6%	13.2%	8.5%	7.2%	1.1%

*National average data used where state data was not available

Winchell, M et al. (2016) Refined Chlorpyrifos Aquatic Exposure Modeling for Endangered Species in Flowing Water Habitats: Ohio River Basin HUC2 Case Study; submitted to EPA docket EPA-HQ-OPP-2008-0850



Malathion Mosquitocide Use by County



Next steps

Properly define "action" based on to be revised labels.

Identify actual use data readily available to FWS

Evaluate its usefulness

Develop ways to provide or collect data

- Registrant contributions
- Data from EPA
- Aggregate and deliver data through FESTF's Gopher

Proposed Agenda for Next Three Meetings

One, Agricultural Uses:

- Developing a percent treated estimate by crop, state and new label uses from AgroTrak and other data.
- Attendees: USFWS staff, all Registrants, EPA staff, USDA agricultural economist and conservation service staff, FESTF staff.

Two, Non-Agricultural Uses:

- Mappable data on actual use in mosquito control and other uses.
- Attendees: USFWS staff, Registrants, EPA staff, USDA agricultural economist and conservation service staff, FESTF staff.

Three: Field applications and methods.

- Implications of use in the real world.
- Attendees: USFWS staff, Registrant, EPA staff, USDA agricultural economist, conservation and cooperative service staff, FESTF staff.

Update on ESA Pesticide Consultations

June 19, 2017

Background: Endangered Species Act (ESA) Obligations for Pesticide Decisions

- Why are pesticide decisions impacted by the ESA?
  - Under Section 7(a)(2) of the ESA, Federal agencies must ensure that the "actions" they authorize will not result in jeopardy or adversely modify designated critical habitat for species listed as endangered or threatened by the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) (jointly the Services)
  - For EPA's Office of Pesticide Programs (OPP), the actions we authorize are the sale, distribution, and use of pesticides according to the product labeling
- Conventional pesticide decisions impacted by ESA:
  - Registration review actions (~50-60/yr)
  - New chemical registrations (~10-12/yr)
  - New use registrations (~50-60/yr)
  - Section 18 Emergency Exemptions (~100/yr)
  - Section 24(c) Special Local Need (SLN) registrations (~200/yr)

Background

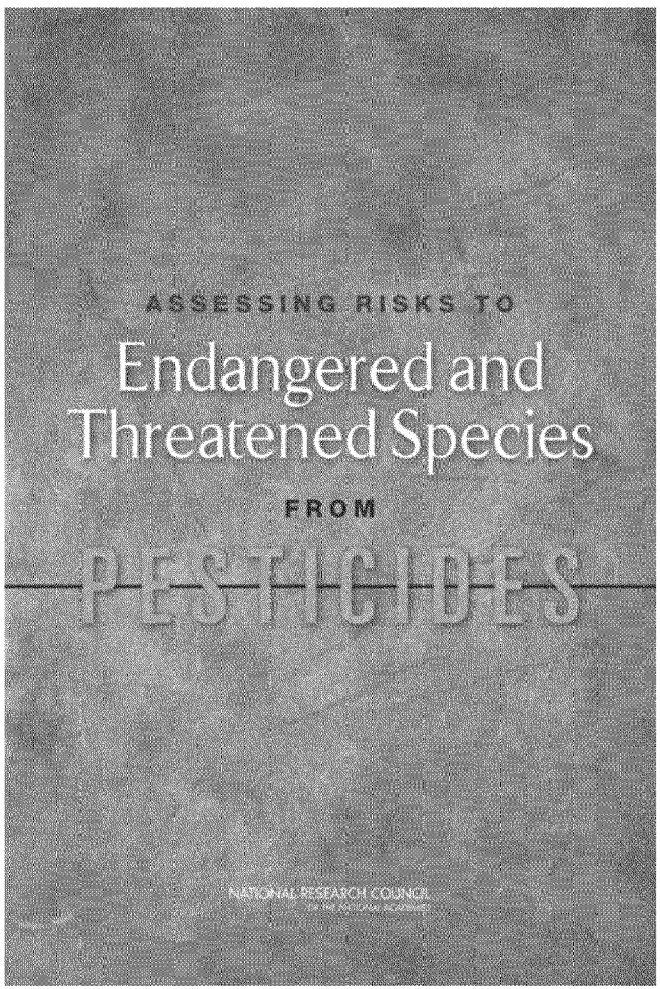
- ESA Authority
  - Section 7(a)(2) of ESA: EPA makes "effects determination" for individual listed species in a biological evaluation (BE):
    - No effect (NE) – no consultation required
      - Overview Document-compliant method (2004): Risk Quotient (RQ) < listed species Level of Concern (LOC)
      - NAS-recommended method (2013): No geospatial co-occurrence of pesticide use footprint with listed species range
    - Not likely to adversely affect (NLAA) – informal consultation; concurrence from Services
    - Likely to adversely affect (LAA) – formal consultation including Biological Opinion (BiOp) from Services (jeopardy/no jeopardy determination)

- Nationwide consultations must consider direct/indirect effects to 1850 listed species and 600+ designated critical habitats

Background - OPP History with the Services

- Disagreement on:
  - Scientific methods to assess the risk of pesticides to listed species
  - Specific actions needed to protect listed species
- EPA has completed over 200 chemical-specific BEs as the result of court-imposed ESA obligations. The Services have issued 9 BiOps based on court-mandated schedules. None of these BEs or BiOps were nationwide evaluations.
  - Time required to complete BiOp is lengthy (typically 2-3 yrs)
  - EPA has often been unable to follow the science logic behind the BiOps
- Of 7 BiOps for listed Pacific Northwest salmon species submitted by NMFS (covering 32 chemicals), EPA has implemented only one (thiobencarb); NMFS 1st BiOp was overturned.
  - Reasonable and Prudent Alternatives (RPAs)/Reasonable and Prudent Measures (RPMs) not feasible/practical to implement:
    - Arbitrary spray drift buffers
    - Lack of a target concentration where effects to listed salmon do not cause jeopardy
- EPA has implemented 2 BiOps submitted by FWS for Rozol and Kaput rodenticides
  - Geographically-specific Bulletins which restrict product use or timing of application

NAS Report Implementation



- Released on April 30, 2013
- Developed in response to a joint request by EPA, NMFS, FWS, and USDA in 2011 to address scientific areas of disagreement
- Recommended 3-step process that integrates ecological risk assessment methods with ESA Section 7 consultations
- Goal: unified interagency approach with agreement on process across all steps
- Multiple interagency workshops where interim methods for EPA's BEs (Steps 1 and 2) have been developed
- Several stakeholder meetings held to engage public on potential refinements
- Interim methods need streamlining to meet available resources
- Final BEs for chlorpyrifos, diazinon, and malathion released in January 2017

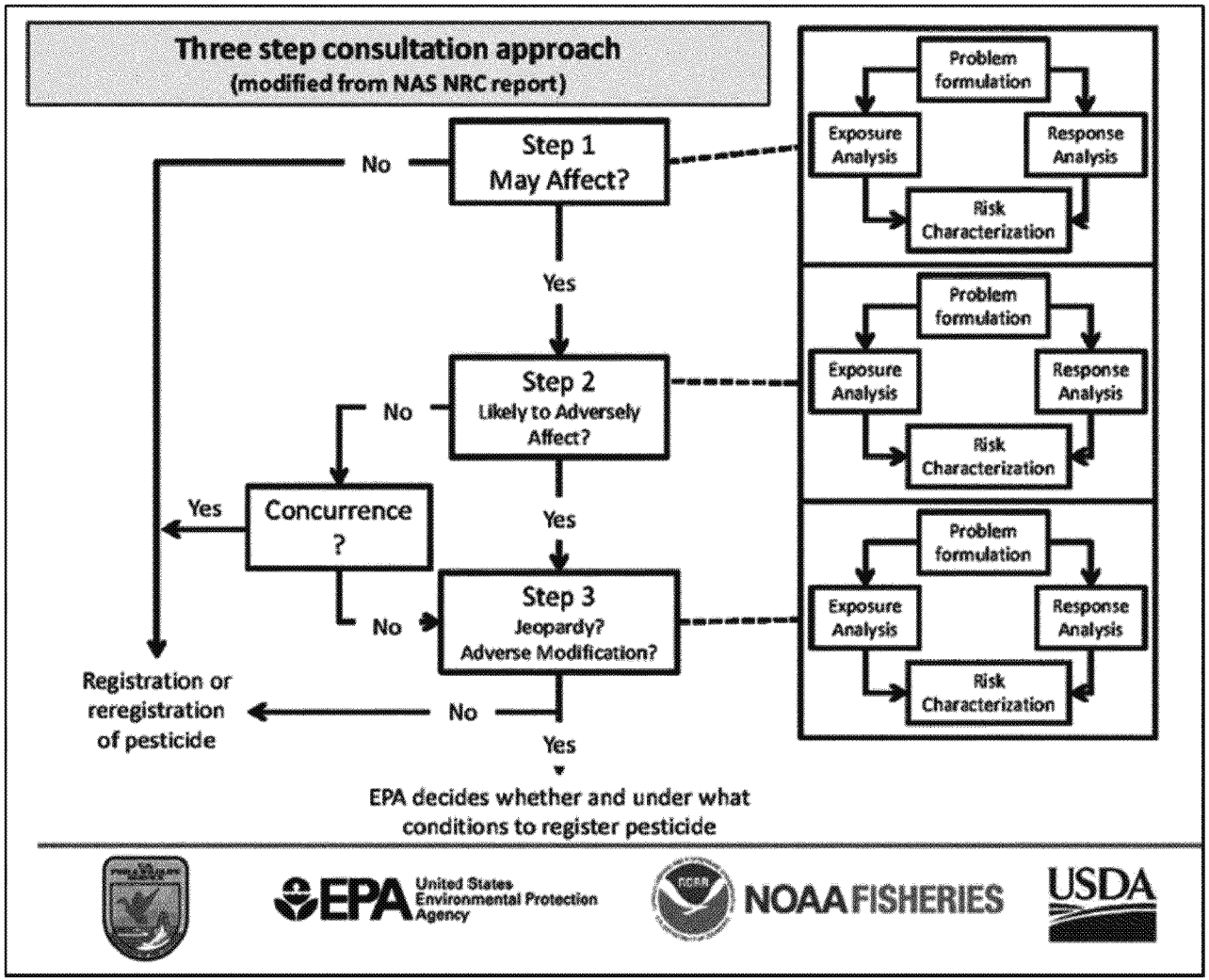
NAS Report Implementation

- The **Biological Evaluation** (BE) determines whether registered pesticides adversely affect one or more individuals of a listed species and/or their designated critical habitats
  - Step 1 ["No Effect/May Affect" Determination]
  - Step 2 ["Not Likely to Adversely Affect (NLAA)/Likely to Adversely Affect (LAA) Determination]

- The **Biological Opinion** (BiOp) determines whether the registration of a pesticide is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its designated critical habitat
  - Step 3 ["Jeopardy/No Jeopardy" Determination and "Adverse Modification/No Adverse Modification" Determination]

Methodology for Pesticide Consultations

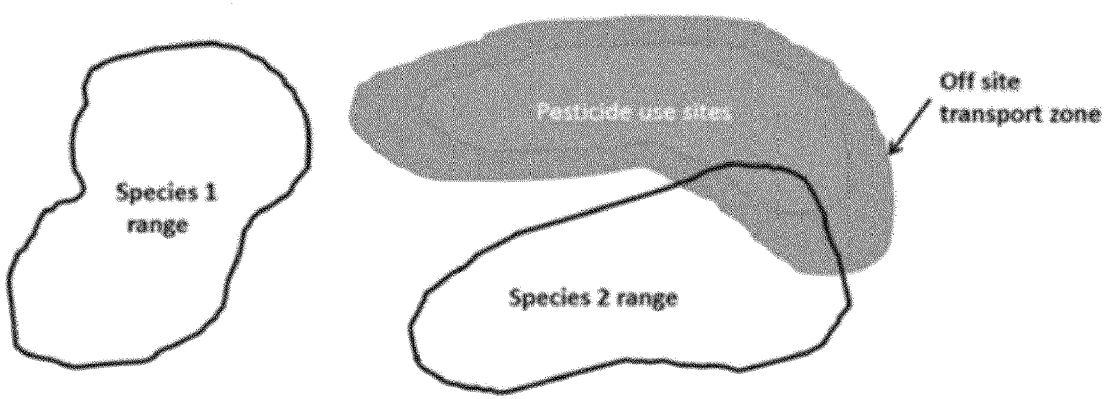
The draft process follows the 2013 NAS recommendations for a 3-step approach:



The draft BE process was developed in close coordination with the Services – EPA has worked very hard to provide information in Steps 1 and 2 that the Services said they would need to conduct Step 3.

Overview of the BE Method – Step 1

- Two sets of spatial data are compared
  - Pesticide exposure area
    - Based on national-level GIS data to identify potential use sites
    - Buffered to account for transport to levels that potentially represent effects (based on most sensitive toxicity data)
  - Species range – provided by Services
- No Effect /May Affect determination
  - Based on whether or not there is overlap of the potential exposure area and the species range
    - No Effect (*i.e.*, no overlap) – no need to seek consultation with Services
    - May Affect (*i.e.*, overlap) – move to step 2



Overview of the BE Method –Step 2

- Step 2
  - Weight-of-Evidence Approach
    - Risk and confidence evaluated for multiple lines of evidence (mortality, growth, reproduction and other sublethal effects) based on estimated exposure and effects thresholds
    - Incident data
    - Qualitative discussion of mixtures and abiotic influence (e.g., temperature, pH) on toxicity
- Intended to answer the questions:
  - Is there a potential for an individual's fitness to be reduced?
  - Is there a potential for important physical and biological features of a species habitat to be adversely affected?
- Describes the process for making Likely to Adversely Affect(LAA)/Not Likely to Adversely Affect (NLAA) Determinations
  - LAA – species/critical habitat moves to Step 3 (jeopardy/adverse modification determination)
  - NLAA – concurrence from the Services

Step 3 – Services BiOps

- Services are currently working on BiOps (Step 3) for chlorpyrifos, diazinon and malathion
  - Proposed delivery date of June 30, 2017 to EPA

- EPA and Services have had several workshops discussing the methodology for population-level risk assessments of endangered species
  - To date, an interagency method has not been reached
  - EPA has provided comments on specific sections of the BiOps to the Services
    - Concerns regarding lack of a transparent method
  - EPA has developed the MAG tool to facilitate analysis of large amounts of data generated in the BEs for the population level risk assessments

Litigation and Settlement Agreements

- Settlement agreements on ESA-litigation
  - Grand Bargain resolved 4 cases to allow agencies to focus ESA compliance and NAS report implementation on nationwide effects determinations and BiOps for 5 pesticides (chlorpyrifos, diazinon, malathion, carbaryl, and methomyl)
    - Final BiOps for chlorpyrifos, diazinon and malathion due in Dec. 2017
    - Final BiOps for carbaryl and methomyl due in Dec. 2018
- EPA and FWS resolved 2 cases with Center for Biological Diversity (CBD) to set schedules for next 4 nationwide pesticide consultations (atrazine, glyphosate, simazine, and propazine)
    - EPA to complete final BEs in June 2020
    - FWS to complete final BiOps in June 2022
- Ongoing ESA challenges:
  - New chemical registrations (cyantraniliprole, flupyridifurone, bicyclopyrone, benzovindiflupyr, and one antimicrobial chemical (coupron couprous iodide)
  - Ellis v. Housenger (clothianidin and thiamethoxam)
  - Megasuit

OPP Approach for ESA Compliance

- Three-pronged approach:
  1. Focus resources on Registration Review for NAS report implementation
     - Generally older chemistries have more risk concerns than new chemistries
     - Apply NAS-recommended ESA methods once vetted
  2. "No effect" Registrations on GMO crops (e.g., 2,4-D Enlist, dicamba)
     - Controversial registrations
     - Likely to be challenged
     - Determinations based on Overview Document-compliant ESA methods
     - Need for transparent and defensible registration decision given potential legal challenges
  3. Hazard Comparisons without full ESA assessments for New Chemicals
     - Generally fewer risk concerns than old chemistries
     - Show comparative hazard for alternative pesticides

BE Conclusions

- LAA for most listed species
  - Chlorpyrifos and malathion – 97% LAA
  - Diazinon - ~80% LAA
  - Due to overlap of range/critical habitat and potential uses sites
  - Low thresholds (high toxicity), maximum use rates, other assumptions of exposure
  - Weight-of-evidence approach
  - LAA for single individual of a listed species
- Similar conclusions for carbaryl and methomyl draft BEs (not yet released)
  - Carbaryl – 97% LAA
  - Methomyl - ~80% LAA

Stakeholder Concerns

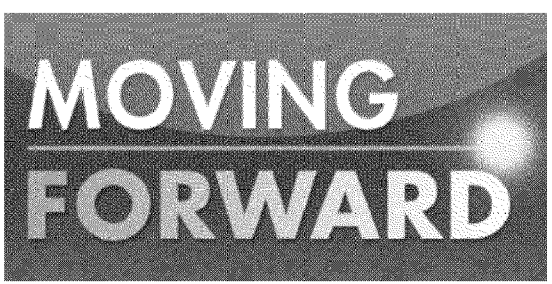
- April 13, 2017 letter from registrants of 3 pilot OPs to political leadership of EPA and the Services requesting:
  - EPA to withdraw the BEs
  - Services to stop work on the BiOps
  - Services to modify settlement agreements to allow more time to complete consultation
- Registrants/Growers:
  - Too large and complex; inadequate comment period
  - Current methods are not sustainable
  - Do not account for taxon-specific toxicity data early enough in the process
  - Overly conservative
  - GIS layers used are too broad (for use site and species range layers)
  - Use of invalid and un-reviewed studies
  - Need to consider public health, usage data and benefits
- NGOs
  - Too large and complex
  - Generally agreed with the overall process

Challenges

- Response to industry letter unresolved – implications for court-mandated final BiOp due dates
- Current efforts do not address resource/capacity issues within EPA and the Services. Services unable to provide staff for additional pesticide consultations (beyond the 9 pesticides mentioned above)
- Proposed interim ESA methodologies are not sustainable with current resources
- Not feasible to retroactively apply new ESA methods (once vetted) to all registration review cases and meet 2022 deadline
- Continued difficulty in resolving scientific methods with the Services
  - Different statues: FIFRA vs. ESA
- Ongoing ESA litigation for new chemical registrations

Next Steps: Future Consultations

- For future BEs, EPA is exploring ways to:
  - Develop sustainable, defensible method to address FIFRA and ESA obligations
  - Reduce the size and complexity of the BEs
  - Move toward more probabilistic approaches
  - Refine both species ranges and potential use sites
  - Utilize watershed-level aquatic exposure models
  - Evaluate and improve the accuracy of exposure estimates in riverine and estuarine/marine habitats
  - Improve characterization and consideration of magnitude of effects
  - Consider the timing of potential exposures (*e.g.*, linkage with life-history variables) and potential durations of exposure
  - Integrate population-level analyses earlier in the process



Background: ESA Timeline

- **April 2013** – NAS report issued
- **November 2013** – release of interim scientific methods for implementing NAS recommendations
- **April 2016** - First draft BEs posted for public comment (chlorpyrifos, malathion, and diazinon)
- **June 2016** – 2-day stakeholder workshop
- **September 2016 to present** – Interagency workshops on BO process
- **September 2016** – Stakeholder meeting on mosquitocides uses
- **January 2017** – Final BEs for chlorpyrifos, malathion, and diazinon
- **April 2017** – Industry requests current pesticide consultations be put on hold
- **Spring 2017 (on hold)** – Release of draft BEs for carbaryl and methomyl
- **June 2017 (expected)** – Draft BOs for chlorpyrifos, malathion, and diazinon
- **December 2017** – Final BOs due for chlorpyrifos, malathion, and diazinon
- **December 2018** – Final BOs due for carbaryl and methomyl

Message

From: Sims, Diann [Sims.Diann@epa.gov]
Sent: 2/21/2018 9:21:07 PM
To: Patrice Ashfield [patrice_ashfield@fws.gov]
CC: Paisley-Jones, Claire [Paisley-Jones.Claire@epa.gov]; Becker, Jonathan [Becker.Jonathan@epa.gov]; Anderson, Brian [Anderson.Brian@epa.gov]
Subject: BEAD Response to FWS questions regarding usage data
Attachments: Diazinon state-crop example.xlsx; BEAD Response to FWS questions regarding usage data 02212018.docx

Hello Patrice,
Thank you for speaking with us earlier today. As agreed, I am sharing our informal response to your data usage questions. We are also providing an update to the example spreadsheet that we provided earlier this morning. I hope that you find the information helpful in preparing for your presentation. If you have additional questions, please do not hesitate to contact me.

Crops growns in florida

Reg Status	Census of Ag	
	Crop	State
reg	Cabbage	Florida
reg	Cantaloupes	Florida
reg	Cucumbers	Florida
reg	Peppers	Florida
reg	Squash	Florida
reg	Strawberries	Florida
reg	Tomatoes	Florida
reg	Watermelons	Florida
reg	Beans (Snap, Bush, Pole, String	FL
reg	Potatoes	FL
reg	BROCCOLI	FL
reg	GREENS, MUSTARD	FL
reg	PARSLEY	FL
reg	SWEET POTATOES	FL
reg	VEGETABLES, OTHER	FL
reg	APPLES	FL
reg	APRICOTS	FL
reg	FIGS	FL
reg	PEACHES	FL
reg	PEARS	FL
reg	PLUMS & PRUNES	FL
not reg	BEANS, DRY EDIBLE, (EXCL LIMA)	FL
not reg	BEANS, DRY EDIBLE, LIMA	FL
not reg	BEETS	FL
not reg	BERRIES, OTHER	FL
not reg	BLACKBERRIES, INCL DEWBERRIES & MARIONBERRIES	FL
not reg	BLUEBERRIES, TAME	FL
not reg	BLUEBERRIES, WILD	FL
not reg	CABBAGE, CHINESE	FL
not reg	CARROTS	FL
not reg	CORN, GRAIN	FL
not reg	CORN, SILAGE	FL
not reg	COTTON	FL
not reg	DAIKON	FL
not reg	EGGPLANT	FL
not reg	FIELD CROPS, OTHER	FL
not reg	GARLIC	FL
not reg	GRASSES & LEGUMES TOTALS, SEED	FL
not reg	GREENS, COLLARD	FL
not reg	GREENS, KALE	FL
not reg	GREENS, TURNIP	FL
not reg	HAY	FL

not reg	HAYLAGE	FL
not reg	HERBS, FRESH CUT	FL
not reg	LETTUCE	FL
not reg	LOGANBERRIES	FL
not reg	MILLET, PROSO	FL
not reg	OATS	FL
not reg	OKRA	FL
not reg	ONIONS, DRY	FL
not reg	ONIONS, GREEN	FL
not reg	PEANUTS	FL
not reg	PEAS, DRY EDIBLE	FL
not reg	PEAS, DRY, SOUTHERN (COWPEAS)	FL
not reg	PEAS, GREEN, (EXCL SOUTHERN)	FL
not reg	PEAS, GREEN, SOUTHERN (COWPEAS)	FL
not reg	PEPPERS, CHILE	FL
not reg	PUMPKINS	FL
not reg	RADISHES	FL
not reg	RYE	FL
not reg	SORGHUM, GRAIN	FL
not reg	SORGHUM, SILAGE	FL
not reg	SOYBEANS	FL
not reg	SPINACH	FL
not reg	SUGARCANE, SEED	FL
not reg	SUGARCANE, SUGAR	FL
not reg	SUNFLOWER	FL
not reg	SWEET CORN	FL
not reg	TOBACCO	FL
not reg	TURNIPS	FL
not reg	WHEAT	FL
not reg	AVOCADOS	FL
not reg	BANANAS	FL
not reg	CHERRIES, SWEET	FL
not reg	CHESTNUTS	FL
not reg	CITRUS, OTHER	FL
not reg	GRAPEFRUIT	FL
not reg	GRAPES	FL
not reg	GUAVAS	FL
not reg	KIWIFRUIT	FL
not reg	KUMQUATS	FL
not reg	LEMONS	FL
not reg	LIMES	FL
not reg	MANGOES	FL
not reg	NECTARINES	FL
not reg	NONCITRUS, OTHER, (EXCL BERRIES)	FL
not reg	ORANGES	FL
not reg	ORANGES, MID & NAVEL	FL
not reg	ORANGES, VALENCIA	FL

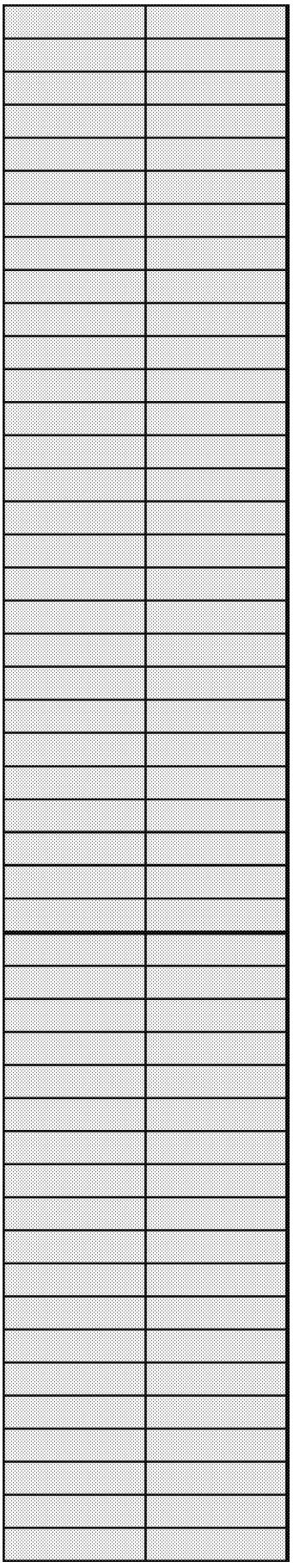
not reg	PAPAYAS	FL
not reg	PASSION FRUIT	FL
not reg	PECANS	FL
not reg	PECANS, IMPROVED	FL
not reg	PECANS, NATIVE & SEEDLING	FL
not reg	PERSIMMONS	FL
not reg	TANGELOS	FL
not reg	TANGERINES	FL
not reg	TEMPLES	FL

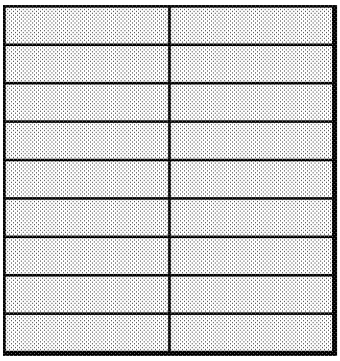
	SUUM		
Crop Acres Harvested_ Ag Census 2012	Avg. Annual Crop Acres Grown†	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT
7,338	9,700	(S)	0
3,010	2,800	(S)	0
20,057	24,500	(S)	0
12,377	17,500	(S)	0
5,901	9,800	(S)	0
11,350	9,300	(S)	0
39,807	31,800	713	0
20,693	25,200	(S)	0
33,338	SNUR		
35,251	SNUR		
983	NS		
109	NS		
232	NS		
5,988	NS		
1,066	NS		
160	NS		
4	NS		
21	NS		
1231	NS		
142	NS		
38	NS		
28	NS		
361	NS		
14	NS		
44	NS		
190	NS		
6,179	NS		
203	NS		
2,387	NS		
2,208	NS		
39,330	NS		
27,715	NS		
105,420	NS		
1	NS		
694	NS		
335	NS		
3	NS		
8,924	NS		
274	NS		
205	NS		
114	NS		
354,127	NS		

48,078	NS		
680	NS		
9,827	NS		
47	NS		
1,475	NS		
4,631	NS		
316	NS		
141	NS		
66	NS		
196,320	NS		
74	NS		
3,765	NS		
629	NS		
1,568	NS		
1,188	NS		
43	NS		
6,061	NS		
2,942	NS		
3,541	NS		
8,385	NS		
19,409	NS		
104	NS		
15,840	NS		
401,491	NS		
16	NS		
35,225	NS		
482	NS		
12	NS		
15,456	NS		
12930	NS		
1113	NS		
2	NS		
592	NS		
727	NS		
60732	NS		
1478	NS		
1312	NS		
1	NS		
35	NS		
77	NS		
241	NS		
2575	NS		
4	NS		
5287	NS		
465001	NS		
221851	NS		
243150	NS		

246	NS		
63	NS		
11760	NS		
6943	NS		
4817	NS		
324	NS		
3754	NS		
8122	NS		
491	NS		

Max. Annual PCT	Avg. Annual PCT
12	**2**
6	**1**
5	**2**
1	**0.2**
12	**5**
35	**9**
27	**11**
2	**0.3**





Crops grown in Colorado

Reg Status	Census of Ag	
	Crop	State
reg	Onions	Colorado
reg	Cabbage	CO
reg	Dry Beans/Peas	CO
reg	Spinach	CO
reg	ASPARAGUS	CO
reg	BARLEY	CO
reg	BEANS, SNAP	CO
reg	BEETS	CO
reg	BERRIES, OTHER	CO
reg	BLACKBERRIES, INCL DEWBERRIES & MARIONBERRIES	CO
reg	BLUEBERRIES, TAME	CO
reg	BROCCOLI	CO
reg	VEGETABLES, OTHER	CO
reg	ALMONDS	CO
reg	APPLES	CO
reg	APRICOTS	CO
reg	PEACHES	CO
reg	PEARS	CO
reg	PLUMS & PRUNES	CO
not reg	BRUSSELS SPROUTS	CO
not reg	CANOLA	CO
not reg	CARROTS	CO
not reg	CAULIFLOWER	CO
not reg	CORN, GRAIN	CO
not reg	CORN, SILAGE	CO
not reg	CUCUMBERS	CO
not reg	EGGPLANT	CO
not reg	EMMER & SPELT	CO
not reg	GRASSES & LEGUMES TOTALS, SEED	CO
not reg	GREENS, KALE	CO
not reg	HAY	CO
not reg	HAYLAGE	CO
not reg	HERBS, DRY	CO
not reg	HERBS, FRESH CUT	CO
not reg	HOPS	CO
not reg	LEGUMES, ALFALFA, SEED	CO
not reg	LETTUCE, ROMAINE	CO
not reg	MELONS, CANTALOUP	CO
not reg	MELONS, HONEYDEW	CO
not reg	MELONS, WATERMELON	CO
not reg	MILLET, PROSO	CO
not reg	OATS	CO

not reg	OKRA	CO
not reg	PEAS, CHINESE (SUGAR & SNOW)	CO
not reg	PEAS, DRY EDIBLE	CO
not reg	PEAS, GREEN, (EXCL SOUTHERN)	CO
not reg	PEPPERS, BELL	CO
not reg	PEPPERS, CHILE	CO
not reg	POTATOES	CO
not reg	PUMPKINS	CO
not reg	RADISHES	CO
not reg	RASPBERRIES	CO
not reg	RHUBARB	CO
not reg	RYE	CO
not reg	SAFFLOWER	CO
not reg	SORGHUM, GRAIN	CO
not reg	SORGHUM, SILAGE	CO
not reg	SOYBEANS	CO
not reg	SQUASH	CO
not reg	STRAWBERRIES	CO
not reg	SUGARBEETS	CO
not reg	SUNFLOWER	CO
not reg	SWEET CORN	CO
not reg	TOMATOES, IN THE OPEN	CO
not reg	TRITICALE	CO
not reg	WHEAT	CO
not reg	CHERRIES, SWEET	CO
not reg	CHERRIES, TART	CO
not reg	GRAPES	CO
not reg	NECTARINES	CO
not reg	PECANS, IMPROVED	CO
not reg	TREE NUTS, OTHER	CO
not reg	WALNUTS, ENGLISH	CO

	SUUM		
Crop Acres Harvested_ Ag Census 2012	Avg. Annual Crop Acres Grown†	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT
6,432	6,400	165	0
1544	SNUR		
42,573	SNUR		
1,088	SNUR		
24	NS		
54,828	NS		
801	NS		
70	NS		
5	NS		
2	NS		
2	NS		
14	NS		
541	NS		
1	NS		
1,387	NS		
80	NS		
2,776	NS		
244	NS		
52	NS		
1	NS		
1,618	NS		
1,630	NS		
9	NS		
1,011,151	NS		
157,285	NS		
72	NS		
15	NS		
36	NS		
2,089	NS		
28	NS		
1,248,960	NS		
59,587	NS		
95	NS		
87	NS		
110	NS		
855	NS		
9	NS		
438	NS		
23	NS		
698	NS		
119,910	NS		
5,936	NS		

3	NS		
1	NS		
1,260	NS		
100	NS		
69	NS		
333	NS		
59,281	NS		
1,824	NS		
76	NS		
24	NS		
3	NS		
1,094	NS		
1,745	NS		
147,955	NS		
11,209	NS		
12,602	NS		
1,092	NS		
23	NS		
30,553	NS		
69,307	NS		
4,885	NS		
341	NS		
3,173	NS		
2,181,967	NS		
276	NS		
146	NS		
1,088	NS		
18	NS		
2	NS		
245	NS		
3	NS		

Max. Annual PCT	Avg. Annual PCT
8	3

Message

From: Han, Kaythi [Han.Kaythi@epa.gov]
Sent: 7/3/2018 4:10:52 PM
To: gina_schultz@fws.gov; Patrice Ashfield [patrice_ashfield@fws.gov]
CC: Anderson, Brian [Anderson.Brian@epa.gov]; Nesci, Kimberly [Nesci.Kimberly@epa.gov]; Siedschlag, Gregory [Siedschlag.Gregory@epa.gov]; Sisco, Debby [Sisco.Debby@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]
Subject: Press Inquiry on FWS Biological Opinions for Chlorpyrifos, Diazinon and Malathion

Hi Gina and Patrice,

We received a press inquiry from the Center for Investigative Reporting and wanted to make sure you have a chance to review our responses. We've publically mentioned the need for the use/usage data at the May 2018 PPDC meeting (on slides 7 and 8 in https://www.epa.gov/sites/production/files/2018-04/documents/session6-esa-update.pdf) but this is the first press inquiry we've received on your BiOps.

Please let me know if you have any edits to the following responses. Could you provide comments by mid-day Thursday? Thanks for your assistance in advance.

Incoming: My name is Susie Neilson and I am with the Center for Investigative Reporting. I am writing to seek comment from the EPA regarding the delays of Biological Opinions by the EPA and Fish & Wildlife Service on three organophosphates, malathion, diazinon and chlorpyrifos.

1. **Why were these reviews delayed?**
   Deliberative Process / Ex. 5
2. **Where is the process now?**
   Deliberative Process / Ex. 5
3. **When will the BiOps will be done, if ever?**
   Deliberative Process / Ex. 5
4. **What is your opinion on the decades of research showing that these pesticides are harming endangered species?**
   Deliberative Process / Ex. 5

Kaythi Han
Team Leader, Communications
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 305-5642 | han.kaythi@epa.gov

Message

From: Han, Kaythi [Han.Kaythi@epa.gov]
Sent: 7/2/2018 10:04:57 PM
To: Miller, Wynne [Miller.Wynne@epa.gov]; Nesci, Kimberly [Nesci.Kimberly@epa.gov]
CC: Anderson, Brian [Anderson.Brian@epa.gov]; Siedschlag, Gregory [Siedschlag.Gregory@epa.gov]
Subject: RE: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Thanks Wynne and Kimberly!

Kaythi Han
Team Leader, Communications
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 305-5642 | han.kaythi@epa.gov

From: Miller, Wynne
Sent: Monday, July 02, 2018 6:00 PM
To: Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Cc: Han, Kaythi <Han.Kaythi@epa.gov>; Anderson, Brian <Anderson.Brian@epa.gov>; Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>
Subject: Re: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Yes - Gina Schultz.

Sent from my iPhone

On Jul 2, 2018, at 5:38 PM, Nesci, Kimberly <Nesci.Kimberly@epa.gov> wrote:

> I expect it's Gina Shultz (Gina_Shultz@fws.gov). Looping in Wynne on this to confirm since Brian is out.
>
> **From:** Han, Kaythi
> **Sent:** Monday, July 02, 2018 5:07 PM
> **To:** Nesci, Kimberly <Nesci.Kimberly@epa.gov>; Anderson, Brian <Anderson.Brian@epa.gov>
> **Cc:** Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>
> **Subject:** RE: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos
>
> Hi Kimberly,
>
> Who should we work with in FWS to clear our drafted responses? Linda just followed up with us on that.
>
> Thanks,
>
> Kaythi Han
> Team Leader, Communications
> Office of Pesticide Programs
> U.S. Environmental Protection Agency
> (703) 305-5642 | han.kaythi@epa.gov

From: Nesci, Kimberly
Sent: Monday, July 02, 2018 9:44 AM
To: Dyner, Mark <dyner.mark@epa.gov>; Strauss, Linda <Strauss.Linda@epa.gov>; Sisco, Debby <Sisco.Debby@epa.gov>; Dinkins, Darlene <Dinkins.Darlene@epa.gov>; Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>; Han, Kaythi <Han.Kaythi@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>
Subject: RE: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Brian is out, and I'm not as close to this topic as he has been. That said, I've attached the most recent, cleared PPDC slides (May 2018), which do mention use and usage data on slides 7 and 8.

https://www.epa.gov/sites/production/files/2018-04/documents/session6-esa-update.pdf
https://www.epa.gov/pesticide-advisory-committees-and-regulatory-partners/pesticide-program-dialogue-committee-meeting-6

From: Dyner, Mark
Sent: Monday, July 02, 2018 9:30 AM
To: Strauss, Linda <Strauss.Linda@epa.gov>; Sisco, Debby <Sisco.Debby@epa.gov>; Dinkins, Darlene <Dinkins.Darlene@epa.gov>; Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>; Han, Kaythi <Han.Kaythi@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: RE: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Adding Brian & Kim, as they may be able to put their hands on the public statements we made regarding usage data for FWS on Malathion-Diazinon-Chlorpyrifos. I assume we discussed that at the PPDC recently? We certainly discussed it vis-à-vis the NMFS BiOp in the 3/23 FRN:

On January 8, 2018, EPA confirmed receipt of the BiOp and informed NMFS of EPA's intention to reinitiate informal consultation on the BiOp so that the consultation on the pesticides could be informed by (1) input from stakeholders, (2) further interagency discussion and agreement on the jeopardy determination interim methods, and (3) additional data and analysis, including consideration of the best scientific and commercial data available on use and usage information.

Attorney Client / Ex. 5

Mark

From: Strauss, Linda
Sent: Monday, July 02, 2018 9:17 AM
To: Sisco, Debby <Sisco.Debby@epa.gov>; Dinkins, Darlene <Dinkins.Darlene@epa.gov>; Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>; Han, Kaythi <Han.Kaythi@epa.gov>; Dyner, Mark <dyner.mark@epa.gov>
Subject: FW: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Good morning. Can you get me (or call me with) some answers to Nancy's Q's this morning? Adding Mark D.

From: Beck, Nancy
Sent: Sunday, July 01, 2018 9:08 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>; Bertrand, Charlotte <Bertrand.Charlotte@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>; Wise, Louise <Wise.Louise@epa.gov>; Keller, Kaitlin <keller.kaitlin@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: RE: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Attorney Client / Ex. 5 Attorney Client / Ex. 5 How does this impact their litigation?

Thanks.

****

Nancy B. Beck, Ph.D., DABT
Deputy Assistant Administrator
Office of Chemical Safety and Pollution Prevention
P: 202-564-1273
M: 202-731-9910
beck.nancy@epa.gov

From: Strauss, Linda
Sent: Friday, June 29, 2018 2:34 PM
To: Beck, Nancy <Beck.Nancy@epa.gov>; Bertrand, Charlotte <Bertrand.Charlotte@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>; Wise, Louise <Wise.Louise@epa.gov>; Keller, Kaitlin <keller.kaitlin@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>
Subject: Press inquiry from the Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

Mark Dyner, OGC, and OPP OKed.

CENTER FOR INVESTIGATIVE REPORTING
SUSIE NEILSN
DDL FRIDAY 29 JUNE
My name is Susie Neilson and I am with the Center for Investigative Reporting. I am writing to seek comment from the EPA regarding the delays of Biological Opinions by the EPA and Fish & Wildlife Service on three organophosphates, malathion, diazinon and chlorpyrifos.

- **Why were these reviews delayed?**

Deliberative Process / Ex. 5

- **Where is the process now?**

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

- **When will the BiOps will be done, if ever?**

Deliberative Process / Ex. 5

- **What is your opinion on the decades of research showing that these pesticides are harming endangered species?**

Deliberative Process / Ex. 5

The comment period was extended and closed this week. https://www.epa.gov/pesticides/epa-extends-comment-period-national-marine-fisheries-services-biological-opinion

From: Daguillard, Robert
Sent: Thursday, June 28, 2018 2:30 PM
To: Strauss, Linda <Strauss.Linda@epa.gov>; Dunton, Cheryl <Dunton.Cheryl@epa.gov>; Siedschlag, Gregory <Siedschlag.Gregory@epa.gov>; Han, Kaythi <Han.Kaythi@epa.gov>; Sisco, Debby <Sisco.Debby@epa.gov>; Pierce, Alison <Pierce.Alison@epa.gov>
Subject: LINDA/OPP - Center for Investigative Reporting - 6/29 - Malathion-Diazinon-Chlorpyrifos

CENTER FOR INVESTIGATIVE REPORTING
SUSIE NEILSN
DDL FRIDAY 29 JUNE

Good afternoon everyone,

Do you think our current desk statement (can't seem to find it, unfortunately) would answer her questions? Thanks in advance, and as always.

++++++++++++++++++++++

My name is Susie Neilson and I am with the Center for Investigative Reporting.

I am writing to seek comment from the EPA regarding the delays of Biological Opinions by the EPA and Fish & Wildlife Service on three organophosphates, malathion, diazinon and chlorpyrifos.

I'm interested in responses to the following queries:

- Why were these reviews delayed?
- Where is the process now?
- When will the BiOps will be done, if ever?
- What is your opinion on the decades of research showing that these pesticides are harming endangered species?

Thank you for your time. Please respond to this message ASAP, as I am on deadline.

Cheers, R.

Robert Daguillard
Office of Media Relations
U.S. Environmental Protection Agency
Washington, DC
+1 (202) 564-6618 (O)
+1 (202) 360-0476 (M)

Message

From: Keigwin, Richard [Keigwin.Richard@epa.gov]
Sent: 12/18/2017 2:50:14 PM
To: Pease, Anita [Pease.Anita@epa.gov]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; Dyner, Mark [dyner.mark@epa.gov]; Guilaran, Yu-Ting [Guilaran.Yu-Ting@epa.gov]; Miller, Wynne [Miller.Wynne@epa.gov]
CC: Anderson, Brian [Anderson.Brian@epa.gov]; Corbin, Mark [Corbin.Mark@epa.gov]; Nesci, Kimberly [Nesci.Kimberly@epa.gov]
Subject: RE: Clarification and follow up to your recent letter regarding our pesticide consultation

Thanks. Let me see if OCSPP needs anything else before we respond to FWS' recent memo/letter to Marietta.

From: Pease, Anita
Sent: Monday, December 18, 2017 9:41 AM
To: Keigwin, Richard <Keigwin.Richard@epa.gov>; Echeverria, Marietta <Echeverria.Marietta@epa.gov>; Dyner, Mark <dyner.mark@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: RE: Clarification and follow up to your recent letter regarding our pesticide consultation

BEAD completed the diazinon use and useage memo (see attached) in April 2016, which I believe we shared with FWS and NMFS shortly thereafter. I could track down the exact email/date if needed. I think the attached memo is ready to "reshare" whenever we are ready.

Thanks,
Anita

Anita Pease
Acting Deputy Director
Biological and Economic Analysis Division (BEAD)
Office of Pesticide Programs
U.S. Environmental Protection Agency

703-305-0392
pease.anita@epa.gov

From: Keigwin, Richard
Sent: Friday, December 15, 2017 9:15 AM
To: Echeverria, Marietta <Echeverria.Marietta@epa.gov>; Dyner, Mark <dyner.mark@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>; Pease, Anita <Pease.Anita@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: RE: Clarification and follow up to your recent letter regarding our pesticide consultation

Thanks everyone. How soon would we be able to provide the Services with the requested use and usage data for diazinon? Let me share the attached with the OCSPP IO; we will await further guidance before responding and/or sending the first batch of use and usage data.

From: Echeverria, Marietta
Sent: Friday, December 15, 2017 8:44 AM
To: Dyner, Mark <dyner.mark@epa.gov>; Keigwin, Richard <Keigwin.Richard@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-

Ting@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>; Pease, Anita <Pease.Anita@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: FW: Clarification and follow up to your recent letter regarding our pesticide consultation

FYI

From: Frazer, Gary [mailto:gary_frazer@fws.gov]
Sent: Friday, December 15, 2017 8:38 AM
To: Echeverria, Marietta <Echeverria.Marietta@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Shultz, Gina <gina_shultz@fws.gov>; Craig Aubrey <craig_aubrey@fws.gov>; Patrice Ashfield <patrice_ashfield@fws.gov>; Nancy Brown-Kobil <Nancy.Brown-Kobil@sol.doi.gov>; Rebecca Finley <shawn.finley@sol.doi.gov>
Subject: Clarification and follow up to your recent letter regarding our pesticide consultation

Please see attached.

Gary Frazer
Assistant Director -- Ecological Services
U.S. Fish and Wildlife Service
(202) 208-4646

Message

From: Dyner, Mark [dyner.mark@epa.gov]
Sent: 12/15/2017 2:27:26 PM
To: Keigwin, Richard [Keigwin.Richard@epa.gov]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; Guilaran, Yu-Ting [Guilaran.Yu-Ting@epa.gov]; Miller, Wynne [Miller.Wynne@epa.gov]; Pease, Anita [Pease.Anita@epa.gov]
CC: Anderson, Brian [Anderson.Brian@epa.gov]; Corbin, Mark [Corbin.Mark@epa.gov]; Nesci, Kimberly [Nesci.Kimberly@epa.gov]
Subject: RE: Clarification and follow up to your recent letter regarding our pesticide consultation

As to their confusion over the existence of any "applicants" for these consultations, here's what we said in the stakeholder document (which was reviewed and approved by the Services):

When EPA determines that formal consultation with one or both of the Services is necessary, continued engagement with registrants and interested stakeholders (e.g., growers, state agencies, conservation groups, and water quality groups) is vital. Under ESA regulations, registrants are considered "applicants." Applicants have certain defined opportunities under the regulations, including the opportunity to submit information during the consultation and review draft biological opinions.

In order to agree to a long-term extension under the regs, we actually need the approval of any applicants. While the registrants are not likely to raise that point (there's not necessarily a reason they should want us to complete reg review consultations sooner rather than later), I have seen NGOs argue that our consultation extensions are not authorized under the regs. Given the number of registrants, it may be logistically difficult to get approval for an extension from all of them, but technically that is something we and the Services should be doing.

From: Keigwin, Richard
Sent: Friday, December 15, 2017 9:15 AM
To: Echeverria, Marietta <Echeverria.Marietta@epa.gov>; Dyner, Mark <dyner.mark@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>; Pease, Anita <Pease.Anita@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: RE: Clarification and follow up to your recent letter regarding our pesticide consultation

Thanks everyone. How soon would we be able to provide the Services with the requested use and usage data for diazinon? Let me share the attached with the OCSPP IO; we will await further guidance before responding and/or sending the first batch of use and usage data.

From: Echeverria, Marietta
Sent: Friday, December 15, 2017 8:44 AM
To: Dyner, Mark <dyner.mark@epa.gov>; Keigwin, Richard <Keigwin.Richard@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Miller, Wynne <Miller.Wynne@epa.gov>; Pease, Anita <Pease.Anita@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Corbin, Mark <Corbin.Mark@epa.gov>; Nesci, Kimberly <Nesci.Kimberly@epa.gov>
Subject: FW: Clarification and follow up to your recent letter regarding our pesticide consultation

FYI

From: Frazer, Gary [mailto:gary_frazer@fws.gov]
Sent: Friday, December 15, 2017 8:38 AM
To: Echeverria, Marietta <Echeverria.Marietta@epa.gov>
Cc: Anderson, Brian <Anderson.Brian@epa.gov>; Shultz, Gina <gina_shultz@fws.gov>; Craig Aubrey

<craig_aubrey@fws.gov>; Patrice Ashfield <patrice_ashfield@fws.gov>; Nancy Brown-Kobil <Nancy.Brown-Kobil@sol.doi.gov>; Rebecca Finley <shawn.finley@sol.doi.gov>
Subject: Clarification and follow up to your recent letter regarding our pesticide consultation

Please see attached.

Gary Frazer
Assistant Director -- Ecological Services
U.S. Fish and Wildlife Service
(202) 208-4646

Message

From: Anderson, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE7D6E5AD2E94B3F8F5AC4D839A6C268-BRIAN ANDERSON]
Sent: 9/18/2018 1:33:53 PM
To: Ashfield, Patrice [patrice_ashfield@fws.gov]
CC: Perry, Tracy (Perry.Tracy@epa.gov) [Perry.Tracy@epa.gov]; Panger, Melissa (Panger.Melissa@epa.gov) [Panger.Melissa@epa.gov]
Subject: FW: table with links to BE comments
Attachments: 3 OPs.use.usage.comments.7.25.18.docx

Hi Patrice

Attached is the table that we sent with links to comments that might have usage data included.

Please let me know if you need anything else or if you have any questions.

Brian

From: Perry, Tracy
Sent: Tuesday, September 18, 2018 9:28 AM
To: Anderson, Brian <Anderson.Brian@epa.gov>
Cc: Panger, Melissa <Panger.Melissa@epa.gov>
Subject: FW: table with links to BE comments

Hi Brian,

Here is the email transmitting the table with links to comments on the 3 OP BEs to FWS, NMFS and USDA.

-Tracy

From: Perry, Tracy
Sent: Wednesday, July 25, 2018 3:42 PM
To: Shultz, Gina <gina_shultz@fws.gov>; cathy.tortorici@noaa.gov; Kunickis, Sheryl - OSEC <Sheryl.Kunickis@osec.usda.gov>; Patrice Ashfield <patrice_ashfield@fws.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Echeverria, Marietta <Echeverria.Marietta@epa.gov>; Wynne Miller <Miller.Wynne@epa.gov>; Sims, Diann <Sims.Diann@epa.gov>; Anderson, Brian <Anderson.Brian@epa.gov>
Subject: table with links to BE comments

All,

Deliberative Process / Ex. 5

Regards,

Tracy L. Perry
Senior Regulatory Advisor
Risk Management and Implementation Branch III
Pesticide Re-evaluation Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
(703) 308-0128

Malathion, Chlorpyrifos, Diazinon BEs: Comments Related to Benefits, Public Health and Usage Data

Commenter	Link to Comment
Paul Whatling, FMC Corporation	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0317-0059"]
CropLife America (Imad Saab)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0063"]
American Farm Bureau Federation (Dale Moore)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0850-0894"]
Western IPM Center (Amanda Crump)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0850-0905"]
Almond Hullers and Processors Association (Gabriele Ludwig)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0055"]
Jerry Baron, Executive Director, USDA, The IR-4 Project	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0850-0924"]
Cranberry Institute (Terry Humfeld)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0050"]
Cherry Marketing Institute (Philip Korson)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0850-0873"]
West Integrated Pest Management Center (Micahel Kuwate)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0064"]
California Farm Bureau Federation (Chelsea Molina)	[HYPERLINK "https://www.regulations.gov/

Commenter	Link to Comment
	document?D=EPA-HQ-OPP-2008-0850-0908"]
Colusa Mosquito Abatement District, CA (Dwight Whitesell)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0049"]
Manatee County (FL) Mosquito Control District	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2009-0317-0050"]
Western Growers (Hank Glicas); represents growers & processors in CA, CO & AZ	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0073"]
California Cotton Ginners and Growers Association (Jodi Raley)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0057"]
California Fresh Fruit Association (Christopher Valadez)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0051"]
California Specialty Crops Council (Gary Van Sickle)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0069"]
Western Agricultural Processors Association (Jodi Raley)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0071"]
NW Horticultural Council (Laura Grunenfelder) and WA State Tree Fruit Assn (Ranie Haas)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0054"] [HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0054"]
The Sutter-Yuba Mosquito and Vector Control District, CA (Michael Kimble)	[HYPERLINK "https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0351-0048"]
National Assn. of Wheat Growers (Gordon Stone)	[HYPERLINK "https://www.regulations.gov/

Commenter	Link to Comment
	document?D=EPA-HQ-OPP-2008-0351-0065"]

Appointment

From: Anderson, Brian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ce7d6e5ad2e94b3f8f5ac4d839a6c268-Brian Anderson]
Sent: 12/10/2018 4:37:59 PM
To: Shultz, Gina [gina_shultz@fws.gov]; Panger, Melissa [Panger.Melissa@epa.gov]; Garber, Kristina [Garber.Kristina@epa.gov]; Nancy Golden [nancy_golden@fws.gov]; Sims, Diann [Sims.Diann@epa.gov]; sheryl.kunickis@osec.usda.gov; Miller, Wynne [Miller.Wynne@epa.gov]; tony.hawkes@noaa.gov; Becker, Jonathan [Becker.Jonathan@epa.gov]; George Noguchi [george_noguchi@fws.gov]; Cathy Tortorici - NOAA Federal [cathy.tortorici@noaa.gov]; ashley_stilson@fws.gov; Paisley-Jones, Claire [Paisley-Jones.Claire@epa.gov]; david.baldwin@noaa.gov; elizabeth.hill2@ars.usda.gov; david epstein [David.Epstein@ARS.USDA.GOV]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; sara_omar@ios.doi.gov; Guilaran, Yu-Ting [Guilaran.Yu-Ting@epa.gov]; Perry, Tracy [Perry.Tracy@epa.gov]; Rossmeisl, Colleen [Rossmeisl.Colleen@epa.gov]; Connolly, Jennifer [Connolly.Jennifer@epa.gov]; Lennartz, Steven [Lennartz.Steven@epa.gov]; Suarez, Mark [Suarez.Mark@epa.gov]; Peck, Charles [Peck.Charles@epa.gov]; Ashfield, Patrice [patrice_ashfield@fws.gov]; Ryan DeWitt [ryan.dewitt@noaa.gov]; Thomas Hooper - NOAA Federal [thomas.hooper@noaa.gov]; Kathryn Bissell [kathryn_bissell@fws.gov]; jennifer_thompson@fws.gov; Sara Pollack [sara_pollack@fws.gov]; Leona Laniawe [leona_laniawe@fws.gov]; Keith Paul [keith_paul@fws.gov]; Burk, Rosemary [rosemary_burk@fws.gov]
CC: Hill2, Elizabeth - OCE [Elizabeth.Hill2@OCE.USDA.GOV]; Nesci, Kimberly (Nesci.Kimberly@epa.gov) [Nesci.Kimberly@epa.gov]; Epstein, David - OCE [David.Epstein@OCE.USDA.GOV]
BCC: DCRoomPYS10100/Potomac-Yard-One [DCRoomPYS10100@epa.gov]

Subject: Usage Briefing for FWS, EPA, NMFS, and USDA management - Focus on Ag Action Area - Skype Link Added
Attachments: DRAFT Agenda Usage Briefing12.10.docx; Interagency Usage workgroup_12-10-18 briefing_final draftCompiled.pptx
Location: DCRoomPYS10100/Potomac-Yard-One

Start: 12/10/2018 6:00:00 PM
End: 12/10/2018 8:00:00 PM
Show Time As: Tentative

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Toll number: +1 (202) 991-0477,,2633120# (Dial-in Number) English (United States)

Find a local number

Conference ID: 2633120
Forgot your dial-in PIN? | Help

Call in number or webinar information forthcoming

Message

From: Anderson, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE7D6E5AD2E94B3F8F5AC4D839A6C268-BRIAN ANDERSON]
Sent: 8/9/2018 5:08:03 PM
To: Echeverria, Marietta (Echeverria.Marietta@epa.gov) [Echeverria.Marietta@epa.gov]
Subject: action area
Attachments: FWS_EPA_ActionArea_Issue.docx; FWS_ActionArea_Issue.docx

Hi Marietta,

Deliberative Process / Ex. 5

Thoughts?

Brian Anderson
Office of Pesticide Programs
Environmental Fate and Effects Division
703.305.0067

Message

From: Anderson, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE7D6E5AD2E94B3F8F5AC4D839A6C268-BRIAN ANDERSON]
Sent: 8/9/2018 3:57:52 PM
To: Dyner, Mark [dyner.mark@epa.gov]
Subject: Action Area
Attachments: FWS_EPA_ActionArea_Issue.docx; FWS_ActionArea_Issue.docx

Mark,

Attorney Client / Ex. 5

Attorney Client / Ex. 5 e if that's possible?

I really will get you pizza one day…

Attorney Client / Ex. 5

B

Brian Anderson
Office of Pesticide Programs
Environmental Fate and Effects Division
703.305.0067

Message

From: Anderson, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE7D6E5AD2E94B3F8F5AC4D839A6C268-BRIAN ANDERSON]
Sent: 4/30/2018 8:49:37 PM
To: Shultz, Gina [gina_shultz@fws.gov]; sheryl.kunickis@osec.usda.gov; Guilaran, Yu-Ting [Guilaran.Yu-Ting@epa.gov]; Patrice Ashfield [patrice_ashfield@fws.gov]; cathy.tortorici@noaa.gov; Pease, Anita [Pease.Anita@epa.gov]; Echeverria, Marietta [Echeverria.Marietta@epa.gov]; kayla_miller@fws.gov; Perry, Tracy [Perry.Tracy@epa.gov]; Miller, Wynne (Miller.Wynne@epa.gov) [Miller.Wynne@epa.gov]; Nesci, Kimberly (Nesci.Kimberly@epa.gov) [Nesci.Kimberly@epa.gov]; Sims, Diann [Sims.Diann@epa.gov]
Subject: Chlorpyrifos Usage Data
Attachments: Chlorpyrifos SIAB Use and Usage Matrix _final04302018.pdf

Dear All,

Attached is the usage data on Chlorpyrifos that BEAD put together in response to the FWS request for the information.

Please let us know if you have any questions or need clarification.

Sincerely,

Brian

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Chlorpyrifos (059101) National and State Summary Use and Usage Summary

FROM: Claire Paisley-Jones, Biologist
Science Information and Analysis Branch
BEAD (7503-P)

THRU: Diann Sims, Chief *Diann Sims*
Science Information and Analysis Branch
BEAD (7503-P)

TO: Melissa Panger, Senior Science Advisor
Environmental Fate and Effects Division

Chlorpyrifos SIAB Use and Usage Matrix

(26 April 2018)

Introduction

The Environmental Protection Agency (EPA) has been working with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to develop a method for assessing the risks of pesticides to endangered and threatened species. Given that many listed species range over large areas, it is necessary to consider use of pesticides on a landscape scale, rather than simply a field or a small watershed. One consideration involves the percent of the crop in a given area (relevant to a listed specie's range) that is treated with a pesticide. There are uncertainties in extrapolating from national level usage data to regional and state level ranges of protected species. In particular, national level data does not distinguish if there are areas of a species' range where usage is greater or less than the average national usage. In order to address these concerns, this document provides all available estimates of pesticide usage data for chlorpyrifos, nationally and by state. All registered use sites as of April 2018 are listed although usage data are not available for every site.

The intended use of the data presented here is to inform assumptions about how chlorpyrifos is used in the United States, and the extent, variability, and rate of that usage at the state level. Pesticide usage data are reported at the state level; usage data at smaller levels may not be statistically valid due to reduced sample size. Extent and variability of usage at the state level are presented using minimum, maximum, and average percent crop treated (PCT) over the five-year observation period. PCT is calculated as the percent of the acres grown for a crop that are treated with chlorpyrifos. Additionally, the data may inform assumptions about crops and states where chlorpyrifos is likely not being used, by identifying crops that are surveyed for but where usage is not observed during the observation period. The state level estimates of pesticide usage presented here (especially PCT) can be used to inform estimates of the proportion of a species range that may be exposed to chlorpyrifos.

The pesticide usage data summarized herein were obtained from both public and private (proprietary) sources. As presented, the data are not proprietary, business confidential, or a trade secret. The most recent five years of available data were used, 2011-2015, in order to represent current usage and the most recent use trend.

Data Sources

- **Agricultural Market Research Data (AMRD)** – proprietary pesticide usage data from 1998 to 2015 for historical use trend and 2011 to 2015 for current usage estimates. These data are collected and sold by a private market research firm. The data are collected by annual surveys of agricultural users in the continental United States and provides pesticide usage data for about 60 crops, including both specialty and row crops. The survey design targets at least 80 percent of US acreage/production of the surveyed commodities. Survey methodology provides statistically valid results, typically at the state level.
- **United States Department of Agriculture's National Agricultural Statistics Service (NASS)** – publicly available pesticide usage data from 2011 to 2015. NASS data are based on surveys that focus on the top-producing states that together account for the majority of U.S. acres or production of the surveyed commodity. NASS survey design targets a minimum of 80 percent of the acreage/production for every fruit, vegetable, and field crop surveyed. Operation level data are

combined during summary and, pending compliance with disclosure rules, published at the state and national levels. NASS does not collect data annually for each crop, but surveys for various commodities on a rotating schedule.

- **California Department of Pesticide Regulation (CADPR) Pesticide Use Reporting (PUR)** – publicly available pesticide usage data for 2011 to 2015. The PUR database contains detailed records and summaries of agricultural applications of pesticides on crops based on application permits. All agricultural growers must submit their production agricultural pesticide use reports monthly and pest control businesses must submit pesticide use reports within 7 days after their application. As such, CADPR data is a census of all usage rather than a survey and is published annually.
- **Non-Agricultural Market Research Data (NMRD)** - Proprietary data source that provides market data for agrochemicals/specialty pesticides for various market sectors, including professional turf and ornamental plants, professional pest control, consumer pesticides, and vegetation management. Market reports reflect usage by class/market segment and chemical and are based on sales information (manufacturer and retail) and end-user surveys. Study dates vary by market sector.

The presented usage data are averaged over the number of years of available survey data based on sampling frequency (five years for AMRD and CADPR, and 1-2 years for NASS and NMRD), regardless of whether usage is observed in each surveyed year. The presented data may thus underestimate the maximum yearly usage. In certain cases, data are unavailable or withheld. These cases are specified in the tables as follows:

- Some data sources do not provide all data elements. When a data element is not available this is indicated with a "--"notation in the relevant column.
- In some cases, not enough samples are available to establish a robust average. This is indicated with the notation "Insufficient number of reports to establish an estimate" or "(S)". Generally, this indicates that the chemical is only periodically used by a small number of users.
- If a registered use site is surveyed by one of our data sources but no usage is observed, this is indicated with the notation "Surveyed but no usage reported" across the data columns. Lack of reported usage data for the pesticide on a surveyed crop indicates that there is a very low likelihood that the given pesticide is used on that crop.
- If a registered use site is not surveyed nationally by any of our data sources, this is indicated with the notation "Not Surveyed at National Level" across the data columns.

Summary

Nationally, among surveyed crops, agricultural chlorpyrifos usage has shown an overall decreasing trend in pounds applied since at least 2000. In contrast acres treated has increased slightly during that time period. Since 2008, however, both pounds applied and acres treated have been declining. Total agricultural acres treated with chlorpyrifos has decreased by 31%, and annual pounds applied agriculturally has decreased 42% since the 2008 peak. (Figure 1). During the most recent five years of available survey data (2011 - 2015), over 5.8 million pounds of chlorpyrifos were applied to nearly 9.5 million acres of agricultural crops annually (Table 1), in 40 states (Table 2). Approximately 50% of pounds of chlorpyrifos applied agriculturally are made to four crops (soybeans, alfalfa, wheat, and field corn). In terms of total acres treated, approximately 75% of the acres treated with chlorpyrifos are planted with the same three crops (soybeans, alfalfa, wheat, and field corn). The remaining 4 chlorpyrifos applications are spread over 30 other crops. Further information on national usage of chlorpyrifos by crop is available in Table 1. While the vast majority of chlorpyrifos is only applied to a handful of crops, examination of the percent of individual crops grown by state that are treated with chlorpyrifos indicates that it is an important pest control tool for certain crops in certain states. For instance, an average of 93% of onions in New

York, 93% of sugar beets in California, and 84% of peaches in South Carolina were treated with chlorpyrifos annually. Some crops display high average percent crop treated across states. For instance, over half of apple growing acres in many states (Virginia, Pennsylvania, Michigan, North Carolina, New York, West Virginia, and Washington) are treated with chlorpyrifos. Further information on percent of crops treated with chlorpyrifos by state is available in Table 2.

National non-agricultural usage data is more limited than agricultural data. However, available survey data indicates that much less chlorpyrifos was applied annually in the non-agricultural market than the agricultural market. During the survey period, over 150 thousand pounds of chlorpyrifos were applied annually to approximately 1.2 million acres of non-agricultural sites including buildings, ornamentals, turf, and wide areas for mosquito control. While the vast majority (88%) of the recorded acres treated with chlorpyrifos were for mosquito control, this sector only accounts for only 7% of pound applied, due to the low application rate of 0.01 lb/acre. Applications rates to ornamentals and turf are much more in line with agricultural use rates. Further information on non-agricultural sites treated with chlorpyrifos is available in (Table 3).

Chlorpyrifos SIAB Use and Usage Matrix

Chlorpyrifos is an insecticide registered for use on the sites listed in the tables below. The following document presents a summary of the use and usage data that is available to the Agency on this active ingredient, during the years listed.

Agricultural Usage

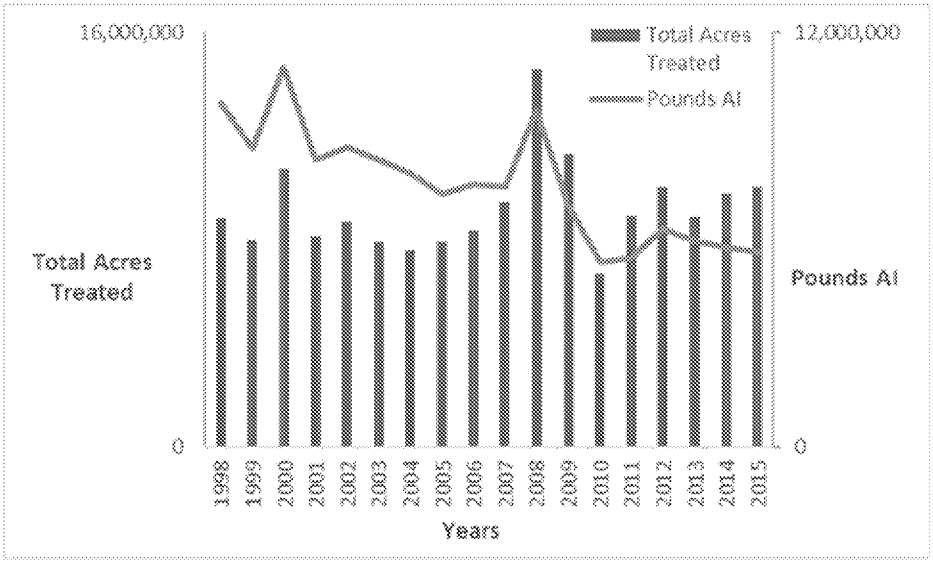

Figure 1. Chlorpyrifos Total Acres Treated and Total Pounds A.I. Applied (1998-2015).
(Does not include crops surveyed only by NASS and CADPR, as indicated in Table 1)
Source: *Market Research Data (MRD).* 1998-2015

Table 1. National Chlorpyrifos Agricultural Usage and Use by Crop. Data Averaged Over Reported Years.

Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Root and Tuber Vegetables	**See individual crops below**						**Full Crop Group Not Registered**
Sugar Beets	AMRD (2011-2015)	CA, CO, ID, MI, MN, MT, NE, ND, WY	156,789	229,116	17%	0.684	2.0
Carrots (Grown for Seed)	AMRD (2011-2015)	Surveyed but no usage reported					0.9
Beets (Garden/Table)	Not Surveyed at National Level						1.9
Ginseng (Medical)	Not Surveyed at National Level						2.0 (MI and WI only)
Radish	Not Surveyed at National Level						3.0
Rutabaga	Not Surveyed at National Level						2.4
Sweet Potato	Not Surveyed at National Level						2.1
Turnips	Not Surveyed at National Level						2.3

(Continued on next page)

Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Bulb Vegetables	**See individual crops below**						**Full Crop Group Not Registered**
Onions	AMRD (2011-2015)	CA, CO, GA, ID, NY, OR, TX, WA	53,732	57,562	0%	0.933	1.0
Cole Crops	**See individual crops below**						**Full Crop Group Not Registered**
Cole Crops (excluding Cauliflower and Brussels Sprouts)	**See individual crops below**						**2.0**
Cabbage	AMRD (2011-2015)	CA, CO, FL, GA, MI, NY, NC	6,913	6,455	0%	1.071	2.0
Broccoli*	CADPR (2011-2015)	CA	11,013	8,356	4%	1.318	2.0
Other Cole Crops	Not Surveyed at National Level						2.0
Brussels Sprouts*	CADPR (2011-2015)	CA	1,242	1,369	100%	0.907	2.3
Cauliflower*	CADPR (2011-2015)	CA	1,989	1,841	1%	1.081	2.3
Legume Vegetables	**See individual crops below**						**2.2 (Soybeans) 1.0 (All Others)**
Dry Beans/Peas	AMRD (2011-2015)	CA, ID, MI, MN, MT, ND, WA, WY	7,858	17,302	4%	0.454	1.0
Beans (Snap, Bush, Pole, String)	AMRD (2011-2015)	CA, FL, OR, TX	3,944	4,555	10%	0.866	1.0
Peas (Fresh/Green/Sweet)	AMRD (2011-2015)	OR	Insufficient number of reports to establish an estimate.				1.0
Soybeans	AMRD (2011-2015)	AL, GA, IL, IN, IO, KS, MI, MN, MO, NE, ND, OH, PA, SC, SD, WI	1,162,212	3,417,480	30%	0.340	2.2
Fruiting Vegetables	**See individual crops below**						**Full Crop Group Not Registered**
Peppers	AMRD (2011-2015)	AZ, FL, TX	Insufficient number of reports to establish an estimate.				1.0
Cucurbit Vegetables	**See individual crops below**						**Full Crop Group Not Registered**
Cucumbers	Not Surveyed at National Level						*(seed only)*
Pumpkins	Not Surveyed at National Level						*(seed only)*

(Continued on next page)

Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Fruit and Nut Trees (Bearing)	**See individual crops below**						**Full Crop Group Not Registered** Rates or bearing trees (Non-bearing trees max rate = 4.0)
Almonds*	CADPR (2011-2015)	CA	283,176	153,764	25%	1.842	4.0
Apples	AMRD (2011-2015)	CA, MI, NY, NC, OH, OR, PA, VA, WA, WV	334,217	214,871	2%	1.555	2.0
Cherries	AMRD (2011-2015)	CA, MI, OR, WA	76,074	51,030	0%	1.491	4.0 (tart cherry) 2.5 (sweet cherry)
Citrus	**See individual crops below**						**6.0**
Grapefruit	AMRD (2011-2015)	FL, TX	77,072	34,790	2%	2.215	6.0
Lemons*	CADPR (2011-2015)	CA	28,773	9,262	0.03%	3.106	6.0
Oranges	AMRD (2011-2015)	CA, FL	413,761	195,226	10%	2.119	6.0
Tangelos	NASS (2011, 2015)	FL	800	--	--	1.459	6.0
Tangerines	NASS (2011, 2015)	CA, FL	22,800	--	--	1.298	6.0
Figs*	CADPR (2011-2015)	CA	Surveyed but no usage reported				2.0
Hazelnuts	AMRD (2011-2015)	OR	4,174	3,810	7%	1.095	2.0
Nectarines*	CADPR (2011-2015)	CA	2,200	1,492	100%	1.475	3.0
Peaches	AMRD (2011-2015)	AL, CA, GA, IL, MI, NJ, NY, PA, SC, TX	41,894	36,872	1%	1.136	3.0
Pears	AMRD (2011-2015)	WA, OR, WA	15,558	7,883	1%	1.974	2.0
Pecans	AMRD (2011-2015)	AL, GA, LA, NM, OK, TX	157,280	174,033	12%	0.904	4.3
Plums/Prunes*	CADPR (2011-2015)	CA	1,899	1,065	0%	1.784	2.5
Walnuts	AMRD (2011-2015)	CA	368,437	193,183	4%	1.907	4.0
Pineapple	Not Surveyed at National Level						2.0

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Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Berries and Small Fruit	**See individual crops below**						**Full Crop Group Not Registered**
Grapes*	CADPR (2011-2015)	CA	92,862	51,445	0.02%	1.805	2.25 (east of the continental divide, CO, ID, and WA); 2.0 (CA)
Strawberries	AMRD (2011-2015)	CA, FL, MI, NY, OR, PA	7,544	7,452	0%	1.012	2.0
Cranberries	Not Surveyed at National Level						1.5
Cereal Grains	**See individual crops below**						**Full Crop Group Not Registered**
Corn	**See individual crops below**						**3.0**
Field Corn	AMRD (2011-2015)	CA, CO, GA, ID, IL, IN, IO, KS, KY, MI, MN, MO, NE, NM, NY, ND, OH, OK, PA, SD, TN, TX, VA, WI	594,211	789,680	24%	0.752	3.0
Sweet Corn	AMRD (2011-2015)	CA, FL, GA, IL, MI, MN, NJ, NY, OH, OR, PA, WA, WI	65,680	66,775	21%	0.984	3.0
Pop Corn	Not Surveyed at National Level						3.0
Sorghum (Milo)	AMRD (2011-2015)	AR, CO, GA, KS, LA, MO, NM, OK, SD, TX	44,777	102,278	46%	0.456	3.3
Wheat	**See individual crops below**						**4.0**
Wheat, Spring	AMRD (2011-2015)	AZ, CA, ID, MN, MT, ND, OR, SD, WA	330,468	960,882	16%	0.344	4.0
Wheat, Winter	AMRD (2011-2015)	CA, CO, IL, IN, KS, MO, MT, NM, NC, ND, OH, OK, OR, SD, TX, VA, WA	290,304	759,353	15%	0.382	4.0
Triticale	Not Surveyed at National Level						*(seed only)*
Grass Forage/Fodder/Hay	AMRD (2011-2015)	Surveyed but no usage reported					1.0

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Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Non-Grass Animal Feeds	**See individual crops below**						**Full Crop Group Not Registered**
Alfalfa	AMRD (2011-2015)	AZ, CA, CO. ID, IL, IN, IO, KS, KY, MI, MN, MO, MT, NE, NV, NM, MO, NE, NV, NM, ND, OH, OK, OR, PA, SD, TX, UT, VA, WA, WI, WY	643,078	1,259,991	21%	0.510	1.0
Clover (Grown for Seed)	Not Surveyed at National Level						1.9
Oil Seed Group	**See individual crops below**						**Full Crop Group Not Registered**
Cotton	AMRD (2011-2015)	AL, AZ, CA, GA, KS, LA, TX	67,816	218,923	13%	0.310	1.0
Sunflowers	AMRD (2011-2015)	CO, KS, MN, NE, ND, SD, TX	67,352	194,760	64%	0.346	2.0
Stalk, Stem, and Leaf Petiole Vegetable Group	**See individual crops below**						**Full Crop Group Not Registered**
Asparagus	AMRD (2011-2015)	CA, MI, WA	18,194	20,881	15%	0.871	1.5

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Crop	Data Source	States with Reported Usage	Avg. Annual Pounds AI Applied [a]	Avg. Annual Total Acres Treated [b]	% Applied by Air	Avg. Single AI Rate	Max Single Labeled Rate lb/a[c]
Misc Crops	**See individual crops below**						**Full Crop Group Not Registered**
Peanuts	AMRD (2011-2015)	AL, FL, GA, NC, SC, TX, VA	197,640	107,969	1%	1.831	4.0
Tobacco	AMRD (2011-2015)	GA, KY, NC, OH, PA, SC, TN, VA	46,334	38,969	0%	1.189	2.0
Mint (Peppermint and Spearmint)	Not Surveyed at National Level						2.0

Notes	
AMRD (YEAR-YEAR)	Agricultural usage surveyed by market research firm(s)
NASS (YEAR)	Surveyed by United States Department of Agriculture National Agricultural Statistics Service
CADPR (YEAR)	Surveyed by the California Department of Pesticide Regulation. Over than 80% of crop grown in California. California usage is considered to be representative of National usage for these crops.
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.
b	Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number of acres treated as some acres are treated more than once.
c	Max labeled rate from APPENDIX 1-3. CYP Master Use Table

Table 2. Chlorpyrifos Agricultural Usage and Use by Crop and State.

Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Root and Tuber Vegetables	*See Individual Crops Below*						
Sugar Beets	AMRD (2011 - 2015)	California	24,800	26,688	72	100	93
		Colorado	5,860	(S)	0	2	0
		Idaho	174,800	76,191	18	79	53
		Michigan	152,200	4,915	1	9	5
		Minnesota	462,202	14,662	2	8	5
		Montana	9,300	(S)	0	1	0
		Nebraska	10,200	(S)	0	12	2
		North Dakota	224,198	33,839	8	26	17
		Wyoming	6,260	(S)	0	8	2
Beets (Garden/Table)	CADPR (2011-2015)	California (21%)	2,730	(S)	0	0.04	11
Carrots (Grown for Seed)	AMRD (2011 - 2015)	Surveyed but no usage reported					
Ginseng (Medical)	Not Surveyed at National Level						
Radish	CADPR (2011-2015)	California (13%)	1,926	1,098	1	4	2
Rutabaga	CADPR (2011-2015)	California (5%)	Surveyed but no usage reported				
Sweet Potato	CADPR (2011-2015)	California (15%)	18,189	2,141	6	15	9
Turnips	CADPR (2011-2015)	California (9%)	386	45	0.3	1	1
Bulb Vegetables	*See Individual Crops Below*						
Onions	AMRD (2011 - 2015)	California	45,140	8,340	11	28	20
		Colorado	2,800	(S)	0	45	10
		Georgia	12,660	7,169	31	94	64
		Idaho	8,360	4,331	4	84	49
		New York	8,900	8,638	81	100	93
		Oregon	19,660	11,850	16	81	62
		Texas	2,720	(S)	0	13	3
		Washington	23,880	12,221	30	80	50
Cole Crops	*See Individual Crops Below*						
Cole Crops (excluding Cauliflower and Brussels Sprouts)	*See Individual Crops Below*						
Broccoli*	CADPR (2011-2015)	California (81)	104,268	11,013	0.105	2	1

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Cabbage	AMRD (2011 - 2015)	California	13,280	4,505	2	60	30
		Colorado	500	(S)	0	100	20
		Florida	3,960	(S)	0	9	2
		Georgia	1,080	(S)	0	7	1
		Michigan	1,920	1,119	0	85	37
		New York	6,080	132	0	3	1
		North Carolina	2,900	(S)	0	25	8
Gai Lon (Chinese Broccoli)	CADPR (2011-2015)	California (--%)	--	(S)	2	9	4
Napa Cabbage	CADPR (2011-2015)	California (--%)	--	240	0.3	1	0.5
Boy Choy	CADPR (2011-2015)	California (--%)	--	379	0.1	1	0.5
Collards	CADPR (2011-2015)	California (5%)	633	96	1	3	2
Kale	CADPR (2011-2015)	California (27%)	4,671	237	0.1	1	0.4
Kohlrabi	CADPR (2011-2015)	California (--%)	--	(S)	0	0.08	0.02
Mustard Greens	CADPR (2011-2015)	California (11%)	Surveyed but no usage reported				
Mizuna	CADPR (2011-2015)	California (--%)	Surveyed but no usage reported				
Other Cole Crops	Not Surveyed at National Level						
Brussels Sprouts*	CADPR (2011-2015)	California (96%)	7,299	1,242	1	12	4
Cauliflower*	CADPR (2011-2015)	California (82%)	34,369	1,989	0.001	1	1
Legume Vegetables	***See Individual Crops Below***						
Dry Beans/Peas	AMRD (2011 - 2015)	California	19,200	748	0	7	2
		Idaho	85,800	(S)	0	1	0
		Michigan	130,000	(S)	0	2	1
		Minnesota	57,000	(S)	0	1	0
		Montana	113,841	(S)	0	0	0
		North Dakota	659,797	2,895	0	2	1
		Washington	110,000	(S)	0	9	2
		Wyoming	6,600	(S)	0	23	5
Beans (Snap, Bush, Pole, String)	AMRD (2011 - 2015)	California	1,912	(S)	0	47	9
		Florida	9,356	(S)	0	5	1
		Oregon	13,163	2,348	15	26	20
		Texas	679	(S)	0	82	16
Peas (Fresh/Green/Sweet)	AMRD (2011 - 2015)	Oregon	7,020	(S)	0	4	1

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Soybeans	AMRD (2011 - 2015)	Alabama	84,000	(S)	0	1	0
		Georgia	108,000	4,843	0	20	6
		Illinois	7,400,003	56,500	0	4	2
		Indiana	5,350,001	142,570	1	9	5
		Iowa	9,660,008	169,391	3	9	6
		Kansas	2,229,999	3,589	0	1	0
		Michigan	1,590,000	23,946	0	7	2
		Minnesota	7,220,001	334,278	10	16	13
		Missouri	3,220,001	24,015	0	2	0
		Nebraska	5,049,999	58,397	1	7	3
		North Dakota	4,990,002	240,678	7	35	17
		Ohio	2,769,996	15,387	0	2	1
		Pennsylvania	106,000	(S)	0	3	1
		South Carolina	164,000	(S)	0	5	1
		South Dakota	4,669,999	64,154	1	11	5
		Wisconsin	1,414,001	21,446	0	16	4
Fruiting Vegetables	***See Individual Crops Below***						
Peppers	AMRD (2011 - 2015)	Arizona	280	(S)	0	45	9
		Florida	3,760	(S)	0	1	0
		Texas	720	(S)	0	5	1
Cucurbit Vegetables	***See Individual Crops Below***						
Cucumbers	AMRD (2011 - 2015)	California	1,941	(S)	0	0	0
		Florida	5,440	(S)	0	4	1
		South Carolina	800	(S)	0	64	13
		Texas	2,020	(S)	0	10	3
Pumpkins	AMRD (2011 - 2015)	Massachusetts	407	263	0	67	13
		Missouri	572	(S)	0	72	23
		New Mexico	806	(S)	0	76	15
		New York	3,660	(S)	0	4	1
		Oregon	406	(S)	0	11	2
		Pennsylvania	2,800	(S)	0	12	3
		Washington	394	(S)	0	28	6
		Wisconsin	2,534	(S)	0	4	2
Fruit and Nut Trees	***See Individual Crops Below***						
Almonds*	CADPR (2011-2015)	California (100%)	935,804	283,176	8	18	12

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Apples	AMRD (2011 - 2015)	California	18,303	5,032	3	41	15
		Michigan	43,282	39,109	66	81	73
		New York	48,366	50,631	52	84	71
		North Carolina	5,850	6,010	55	90	73
		Ohio	4,709	2,008	36	43	40
		Oregon	5,471	1,806	1	40	17
		Pennsylvania	23,416	29,666	64	88	75
		Virginia	12,827	15,507	60	92	80
		Washington	163,924	180,344	49	68	57
		West Virginia	3,723	4,102	0	89	62
Apricots	AMRD (2011 - 2015)	California	2,158	(S)	0	5	1
Cherries	AMRD (2011 - 2015)	California	29,805	1,700	0	7	3
		Michigan	45,911	20,846	24	60	39
		Oregon	17,037	16,804	33	67	47
		Washington	42,192	36,725	41	58	48
Citrus	***See Individual Crops Below***						
Grapefruit	AMRD (2011 - 2015)	Florida	52,411	53,878	32	61	44
		Texas	18,314	23,194	5	89	35
Lemons*	CADPR (2011-2015)	California (80%)	49,631	28,773	13	22	18
Oranges	AMRD (2011 - 2015)	California	191,650	183,378	17	36	26
		Florida	481,814	230,383	17	30	23
Tangelos	NASS (2011, 2015)	Florida	800	800	(D)	7	7
Tangerines	NASS (2011, 2015)	California	33,465	21,950	19	24	22
		Florida	8,122	850	5	6	6
Figs*	CADPR (2011-2015)	California (96%)	6,787	Surveyed but no usage reported			
Hazelnuts	AMRD (2011 - 2015)	Oregon	35,343	4,174	8	12	10
Nectarines*	CADPR (2011-2015)	California (87%)	19,555	2,200	2	8	6

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Peaches	AMRD (2011 - 2015)	Alabama	2,274	1,728	35	100	66
		California	52,541	3,288	2	5	3
		Georgia	10,485	7,234	0	63	34
		Illinois	720	419	0	70	23
		Michigan	4,146	1,007	4	30	11
		New Jersey	3,256	3,387	0	83	25
		New York	361	(S)	0	4	1
		Pennsylvania	5,025	1,676	2	50	22
		South Carolina	17,999	18,064	68	95	84
		Texas	5,062	2,465	6	60	32
		Washington	2,633	2,613	10	90	50
Pears	AMRD (2011 - 2015)	California	7,599	1,930	0	16	6
		Oregon	17,144	1,548	2	11	4
		Washington	22,993	12,079	14	37	24
Pecans	AMRD (2011 - 2015)	Alabama	10,815	5,046	0	33	13
		Georgia	117,902	68,312	27	46	39
		Louisiana	3,243	(S)	0	59	12
		New Mexico	40,079	13,944	7	55	26
		Oklahoma	126,728	4,867	2	6	4
		Texas	170,910	61,317	19	38	27
Plums*	CADPR (2011-2015)	California (94%)	21,616	1,142	1	3	4
Prunes*	CADPR (2011-2015)	California (94%)	61,295	757	0	2	1
Walnuts	AMRD (2011 - 2015)	California	314,967	368,437	32	47	42
Pineapple	Not Surveyed at National Level						
Berries and Small Fruit	***See Individual Crops Below***						
Grapes*	CADPR (2011-2015)	California (83%)	940,178	92,862	6	16	12
Strawberries	AMRD (2011 - 2015)	California	31,420	6,179	0	31	16
		Florida	3,560	(S)	0	7	2
		Michigan	660	282	0	49	23
		New York	1,200	253	0	29	15
		Oregon	2,100	699	9	29	22
		Pennsylvania	348	(S)	0	10	3
Cranberries	Not Surveyed at National Level						

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Cereal Grains	*See Individual Crops Below*						
Corn	*See Individual Crops Below*						
Field Corn	AMRD (2011 - 2015)	California	244,001	(S)	0	2	1
		Colorado	504,000	(S)	0	5	1
		Georgia	239,000	10,210	0	14	8
		Idaho	146,000	(S)	0	13	4
		Illinois	12,300,006	151,554	1	2	1
		Indiana	5,980,002	47,949	0	2	1
		Iowa	13,899,998	68,228	0	1	1
		Kansas	3,590,000	52,146	0	8	2
		Kentucky	1,198,000	4,496	0	1	0
		Michigan	2,599,999	39,532	0	3	1
		Minnesota	8,439,999	35,157	0	1	1
		Missouri	2,680,000	4,946	0	1	1
		Nebraska	9,740,001	34,208	0	1	0
		New Mexico	25,000	(S)	0	2	0
		New York	896,000	(S)	0	5	1
		North Dakota	779,998	(S)	0	0	0
		Ohio	3,710,002	29,542	0	1	1
		Oklahoma	140,000	(S)	0	12	3
		Pennsylvania	1,460,001	24,283	1	3	2
		South Dakota	2,079,999	(S)	0	3	1
		Tennessee	186,000	(S)	0	1	0
		Texas	480,000	(S)	0	0	0
		Virginia	396,000	8,216	0	3	2
		Wisconsin	4,199,999	33,323	1	1	1
Sweet Corn	AMRD (2011 - 2015)	California	32,680	8,814	9	34	21
		Florida	36,000	15,451	0	82	36
		Georgia	5,600	(S)	0	10	2
		Illinois	10,928	924	0	28	7
		Michigan	7,880	362	0	20	5
		Minnesota	124,180	1,365	1	3	1
		New Jersey	4,717	688	0	24	11
		New York	32,891	3,637	2	14	10
		Ohio	16,020	5,887	6	48	29
		Oregon	23,642	14,997	44	73	57
		Pennsylvania	14,731	6,366	20	52	35
		Washington	37,160	4,336	0	14	4
		Wisconsin	78,260	2,282	0	11	4
Pop Corn	Not Surveyed at National Level						

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Sorghum (Milo)	AMRD (2011 - 2015)	Arkansas	100,000	(S)	0	7	1
		Colorado	128,999	(S)	0	0	0
		Georgia	27,000	(S)	0	17	5
		Kansas	2,850,001	6,387	0	1	0
		Louisiana	86,000	8,316	0	53	13
		Missouri	49,000	1,470	0	15	3
		New Mexico	25,000	(S)	0	1	0
		Oklahoma	148,001	4,195	0	6	2
		South Dakota	40,000	(S)	0	1	0
		Texas	2,509,996	20,504	1	3	2
Wheat	***See Individual Crops Below***						
Wheat, Spring	AMRD (2011 - 2015)	Arizona	14,000	(S)	0	3	1
		California	26,000	(S)	0	4	1
		Idaho	239,601	(S)	0	3	1
		Minnesota	1,414,001	27,926	1	9	5
		Montana	1,933,991	1,989	0	1	0
		North Dakota	6,948,004	263,161	7	14	12
		Oregon	20,000	(S)	0	2	1
		South Dakota	1,068,400	2,753	0	1	1
		Washington	124,000	(S)	0	0	0
Wheat, Winter	AMRD (2011 - 2015)	California	310,000	4,906	0	6	1
		Colorado	2,490,002	48,351	0	9	5
		Idaho	152,000	(S)	0	0	0
		Illinois	152,000	(S)	0	1	0
		Kansas	5,559,996	33,681	0	3	1
		Missouri	350,000	(S)	0	0	0
		Montana	460,001	(S)	0	2	0
		New Mexico	162,000	(S)	0	35	7
		North Carolina	166,000	(S)	0	0	0
		North Dakota	508,000	52,613	0	44	24
		Ohio	114,000	(S)	0	1	0
		Oklahoma	5,360,003	33,191	1	4	1
		Oregon	299,999	(S)	0	2	1
		South Dakota	330,000	(S)	0	1	0
		Texas	5,830,003	94,288	3	10	5
		Virginia	176,000	(S)	0	2	1
		Washington	332,000	(S)	0	0	0
Triticale	Not Surveyed at National Level						
Grass Forage/Fodder/Hay	AMRD (2011 - 2015)	Surveyed but no usage reported					

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Crop	Data Source	State	Avg. Annual Crop Acres Grown	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Non-Grass Animal Feeds	*See Individual Crops Below*						
Alfalfa	AMRD (2011 - 2015)	Arizona	206,000	8,469	0	11	6
		California	718,000	89,673	0	50	20
		Colorado	742,001	29,470	5	13	8
		Idaho	1,056,001	37,446	3	11	6
		Illinois	130,000	(S)	0	3	1
		Indiana	56,000	(S)	0	10	2
		Iowa	756,000	5,507	0	2	1
		Kansas	640,000	127,225	28	40	35
		Kentucky	121,000	(S)	0	6	2
		Michigan	254,000	6,855	0	4	1
		Minnesota	1,016,000	16,845	1	5	3
		Missouri	250,000	18,479	1	21	11
		Montana	1,110,000	3,979	0	2	1
		Nebraska	468,000	14,119	0	10	3
		Nevada	251,000	11,179	1	17	9
		New Mexico	212,000	20,301	3	28	15
		North Dakota	1,198,000	33,152	0	8	4
		Ohio	264,000	2,633	0	7	2
		Oklahoma	259,999	100,502	40	67	54
		Oregon	310,000	9,832	0	12	5
		Pennsylvania	326,000	4,047	0	6	2
		South Dakota	2,010,001	6,199	0	3	1
		Texas	70,000	(S)	0	58	16
		Utah	537,999	30,228	10	16	13
		Virginia	14,000	(S)	0	2	0
		Washington	252,000	4,874	0	10	3
		Wisconsin	946,000	4,212	0	2	1
		Wyoming	520,000	27,944	4	17	9
Clover (Grown for Seed)	Not Surveyed at National Level						
Oil Seed Group	*See Individual Crops Below*						
Cotton	AMRD (2011 - 2015)	Alabama	71,000	(S)	0	2	1
		Arizona	124,000	1,861	0	4	2
		California	204,799	26,993	0	24	12
		Georgia	773,999	32,339	0	16	6
		Kansas	11,400	(S)	0	5	2
		Louisiana	93,001	(S)	0	1	0
		Texas	5,270,810	(S)	0	1	0

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Crop	Data Source	State	Avg. Annual Crop Acres Grown†	Avg. Annual Total Lbs. AI Applied	Min. Annual PCT	Max. Annual PCT	Avg. Annual PCT
Sunflowers	AMRD (2011 - 2015)	Colorado	83,900	2,449	2	30	11
		Kansas	86,800	16,933	17	54	32
		Minnesota	55,800	4,064	3	26	13
		Nebraska	27,200	(S)	0	16	5
		North Dakota	670,804	24,283	5	20	12
		South Dakota	525,597	13,909	0	8	4
		Texas	79,001	5,140	0	32	13
Stalk, Stem, and Leaf Petiole Vegetable Group	***See Individual Crops Below***						
Asparagus	AMRD (2011 - 2015)	California	11,760	10,444	34	89	65
		Michigan	10,260	7,152	53	72	63
		Washington	1,300	(S)	0	32	6
Misc Crops	***See Individual Crops Below***						
Peanuts	AMRD (2011 - 2015)	Alabama	69,000	(S)	0	11	3
		Florida	168,000	9,348	0	11	3
		Georgia	597,999	153,545	5	18	14
		North Carolina	90,200	17,777	6	20	11
		South Carolina	18,000	(S)	0	1	0
		Texas	81,400	3,788	0	9	2
		Virginia	18,000	3,926	2	24	11
Tobacco	AMRD (2011 - 2015)	Georgia	10,668	1,834	0	31	19
		Kentucky	86,552	1,653	0	3	2
		North Carolina	174,410	34,907	7	26	16
		Ohio	360	(S)	0	8	2
		Pennsylvania	7,574	4,223	0	79	33
		South Carolina	10,065	2,913	0	58	19
		Tennessee	5,479	(S)	0	2	0
		Virginia	20,085	653	0	6	3
Mint (Peppermint and Spearmint)	CADPR (2011-2015)	California (3%)	3,037	(S)	0	0.03	0.01

Notes	
AMRD (YEAR-YEAR)	Surveyed by MRD Data, and Year(s) of data included
NASS (YEAR)	Surveyed by NASS, and Year(s) of data included
CADPR (YEAR)	Surveyed by CADPR and Year(s) of data included. Percent of crop grown in California included under state. Crops with reported CADPR data, but less than 80% of crop grown in California, are grown in other states, but other survey data is unavailable.
*	California crop. Over than 80% of crop grown in California. California usage is considered to be representative of National usage for these
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.
c	Max labeled rate from APPENDIX 1-3. CYP Master Use Table
(S)	Insufficient number of reports to establish an estimate. This indicates that the chemical is only periodically used by a small number of users.
†	CAG represents the total number of acres that are grown of the crop in each state. It is independent of treatment with any pesticide

Non-Agricultural Usage

Table 3. National Chlorpyrifos Non-Agricultural Usage and Use by Crop. Data Averaged Over Reported Years.

Use Site/Geographic Area [d]	Data Source	Avg. Annual Pounds AI Applied [a]	% of market by weight [c]	Avg. Annual Total Acres Treated [b]	Max Single Labeled Rate [e]
ALL Ornamental Lawns and Turf, Sod Farms (Turf)	**NMRD (2012)**	**142,000**	**6.5% (6th highest)**	--	**6.0 lb/a** (woody shrubs/vines) **4.0 lb/a** (nursery stock) **3.0 lb/a** (herbaceous plants/ornamental trees) **0.007 lb/gal** (non-flowering) **3.76** (turf)
Nursery/Greenhouse	**NMRD (2012)**	**47,318**	**8.3% (2nd highest)**	**6,860**	**6.0 lb/a** (woody shrubs/vines) **4.0 lb/a** (nursery stock) **3.0 lb/a** (herbaceous plants/ornamental trees) **0.007 lb/gal** (non-flowering)
Deep South	NMRD (2012)	8,000	--	13,150	(see above)
North Central	NMRD (2012)	13,000	--	14,930	(see above)
Northeast	NMRD (2012)	9,000	--	24,700	(see above)
South	NMRD (2012)	15,000	--	11,810	(see above)
West	NMRD (2012)	2,000	--	2,260	(see above)
Turf Farms	**NMRD (2012)**	**70,144**	**58% (1st highest)**	**63,700**	**3.76 lb/a**
Deep South	NMRD (2012)	56,000	--	50,430	3.76 lb/a
South	NMRD (2012)	11,000	--	6,790	3.76 lb/a
West	NMRD (2012)	3,000	--	6,480	3.76 lb/a

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Use Site/Geographic Area [d]	Data Source	Avg. Annual Pounds AI Applied [a]	% of market by weight [c]	Avg. Annual Total Acres Treated [b]	Max Single Labeled Rate[e]
Golf Course Turf	**NMRD (2012)**	**21,872**	**4.8% (5th highest)**	**24,160**	**3.76 lb/a**
Deep South	NMRD (2012)	6,000	--	3,800	3.76 lb/a
North Central	NMRD (2012)	3,000	--	3,150	3.76 lb/a
Northeast	NMRD (2012)	7,000	--	8,250	3.76 lb/a
South	NMRD (2012)	4,000	--	6,460	3.76 lb/a
West	NMRD (2012)	1,000	--	2,490	3.76 lb/a
In Institutional Turf Facilities	**NMRD (2012)**	**308**	**0.2%**	**620**	**3.76 lb/a**
West	NMRD (2012)	308	--	620	3.76 lb/a
Applied to Turf by Landscape Contractors	**NMRD (2012)**	**39**	**0.05%**	**40**	**3.76 lb/a**
Northeast	NMRD (2012)	39	--	40	3.76 lb/a
Applied to Turf by Lawn Care Operators	**NMRD (2012)**	**2,773**	**0.4%**	**2,140**	**3.76 lb/a**
South	NMRD (2012)	400	--	260	3.76 lb/a
West	NMRD (2012)	2,000	--	950	3.76 lb/a
Wide Area Treatments					
Mosquito Control; Household/ Domestic Dwellings Outdoor Premises; Recreational Areas	**NMRD (2015)**	**10,944**	**0.50%**	**1,103,408**	**0.01 lb/a**
North Central	NMRD (2015)	532	--	88,306	0.01 lb/a
South	NMRD (2015)	9,339	--	895,102	0.01 lb/a
West	NMRD (2015)	1,073	--	120,000	0.01 lb/a
Mosquito Control	NMRD (2012)	Surveyed but no usage reported			0.01 lb/a
Wide Area/ General Outdoor Treatment (for ants and other misc pests)	NMRD (2012)	Surveyed but no usage reported			0.5084 lb/100 gal

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Use Site/Geographic Area [d]	Data Source	Avg. Annual Pounds AI Applied [a]	% of market by weight [c]	Avg. Annual Total Acres Treated [b]	Max Single Labeled Rate[e]
Buildings/Premises					
Commercial/Institution-Al/ Industrial Premises/ Equip. (Indoor)	NMRD (2012)	Surveyed but no usage reported			0.4373 lb/100 sq ft, 190.5 lb/a (fire ants) 0.0625 lb/1,000 sq ft, 2.7 lb/a (general)
Commercial/Institutional /Industrial Premises/Equip. (Outdoor)	NMRD (2012)	Surveyed but no usage reported			0.1132 lb/1,000 sq ft, 4.9 lb/a
Nonagricultural Outdoor Buildings/Structures (non-residential)	NMRD (2012)	Surveyed but no usage reported			1.0 lb/a
Food Processing Plant Premises (Nonfood Contact)	NMRD (2014)	Surveyed but no usage reported			0.0424 lb/gal
Household/ Domestic Dwellings Indoor Premises	NMRD (2010, 2012)	Surveyed but no usage reported			0.0003 lb/bait station
Wood Protection Treatment to Buildings/ Products Outdoor	NMRD (2012)	Surveyed but no usage reported			16.65 lb/10,000 sq ft
Rights of Way/Utilities					
Rights of Way, Road Medians	NMRD (2011)	Surveyed but no usage reported			1.0 lb/a
Utilities	NMRD (2011)	Surveyed but no usage reported			0.44 lb/100 sq ft/ 1.0 lb/a
Sewer Manhole Covers and Walls	NMRD (2011)	Surveyed but no usage reported			0.31 lb/ manhole
Livestock Areas/Animals					
Agricultural Farm Premises (livestock housing and holding areas)	Not Surveyed at National Level				0.075 lb/1,000 sq ft, 1.2 lb/a
Poultry Litter	Not Surveyed at National Level				0.07126 a.i./1000 sq ft, 3.1 lb/a
Beef/Dairy Cattle	Not Surveyed at National Level				0.0066 lb/animal

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Use Site/Geographic Area [d]	Data Source	Avg. Annual Pounds AI Applied [a]	% of market by weight [e]	Avg. Annual Total Acres Treated [b]	Max Single Labeled Rate [c]
Trees					
Christmas Tree Plantations	NMRD (2011)	Surveyed but no usage reported			2.5 lb/a
Hybrid Cottonwood/ Poplar Plantations	NMRD (2011)	Surveyed but no usage reported			1.9 lb/a
Forest Plantings (Reforestation Programs) (Tree Farms, Tree Plantations, etc)	NMRD (2011)	Surveyed but no usage reported			1.0 lb/a
Conifers and Deciduous Trees; Plantation, Nursery	NMRD (2011)	Surveyed but no usage reported			1.0 lb/a
Forest Trees (Softwoods, Conifers)	NMRD (2011)	Surveyed but no usage reported			[3.6 lb/a] 2.4 lb a.i./100 gal

Notes	
NMRD (YEAR)	Nonagricultural usage surveyed by market research firms.
a	The pounds AI displayed in this document may differ from those displayed in the SLUA and other BEAD documents, because different calculation methods were used.
b	Total Acres Treated accounts for multiple applications to a single area. This may overestimate the number of acres treated as some acres are treated more than once.
c	Max labeled rate from 2017 EFED 1-3 Master Use Table.
d	Geographic regions based on U.S. Census Bureau regions. Northeast (ME, NH, VT, MA, CT, RI, NJ, NY, PA) North Central (ND, MN, WI, MI, OH, IN, IL, IA, ND, NE, SD, MO) West (WA, OR, CA, ID, NV, MT, WY, UT, CO, AZ, NM) South (OK, AR, TN, KY, WV, MD, DE, VA, NC) Deep South (TX, LA, MS, AL, GA, SC, FL)
e	Where available, market rank is provided in addition to percent of market by weight.

Prepared by Claire Paisley-Jones, 26 April 2018.

Message

From: Anderson, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=CE7D6E5AD2E94B3F8F5AC4D839A6C268-BRIAN ANDERSON]
Sent: 2/15/2018 10:11:42 PM
To: Ashfield, Patrice [patrice_ashfield@fws.gov]
CC: Echeverria, Marietta (Echeverria.Marietta@epa.gov) [Echeverria.Marietta@epa.gov]; Sims, Diann [Sims.Diann@epa.gov]; Miller, Wynne (Miller.Wynne@epa.gov) [Miller.Wynne@epa.gov]
Subject: Draft agenda for pesticide use meeting_2_15_2018.docx
Attachments: Draft agenda for pesticide use meeting_2_15_2018.docx

Hi Patrice,

Are you the right person to whom to send edits to the agenda? We have two additions at this time. Please feel free to give me a call if you have any questions.

Thanks

Brian